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EXPERIENCE REPORT

PERFORMANCE OF RESIDENT HEALTH CARE PROFESSIONALS ON COVID-19 COMBAT: AN EXPERIENCE REPORT FROM THE HEALTH DEPARTMENT OF THE FEDERAL DISTRICT, BRAZIL

ATUAÇÃO DO PROFISSIONAL DE SAÚDE RESIDENTE NO ENFRENTAMENTO DA COVID-19: UM RELATO DE EXPERIÊNCIA DA SECRETARIA DE ESTADO DE SAÚDE DO DISTRITO FEDERAL

EL DESEMPEÑO DE PROFESIONALES DE SALUD RESIDENTES EN EL COMBATE DE LA COVID-19: INFORME DE EXPERIENCIA DE LA SECRETARÍA DE SALUD DEL DISTRITO FEDERAL, BRASIL

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Abstract
The present study aimed to describe the activities of Resident Health Care Professionals (RHCPs), linked to Multiprofessional Residency Programs in Public Health Policy Management, in the epidemiological surveillance actions combating of disease COVID-19 carried out by the Department of Health of the Federal District. This is an experience report about the work process developed by the Technical Support Commission (TSC) for Epidemiological Surveillance in partnership with the Center for Emergency Operations in Public Health, from March to April 2020. The activities developed were divided into five stages and involved the receivement, structuring and organization of information on suspected and confirmed hospitalized cases of COVID-19, made available daily by public and private health institutions in the Federal District. The TSC was composed of a multiprofessional team, which supported integration as well as the teaching-learning process. The RHCPs acted in the identification of obstacles and contributed to the improvement of workflows, as well as in the use of a Health Information System (online

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forms - FormSUS) for the speed and monitoring of data. Immediate notification is necessary for prevention and control measures to take place in a short period of time, especially in pandemic settings. The performance of the RHCPs contributed to the strengthening of the epidemiological surveillance actions and to an integrated and qualified work, giving allowance to the decision process by managers against COVID-19.

Keywords: Public Health Surveillance; Pandemics; Coronavirus Infection; Inservice Training; Information Systems.

Resumo

O presente estudo teve como objetivo descrever as atividades desenvolvidas pelos Profissionais de Saúde Residentes (PSR), vinculados a Programas de Residência Multiprofissional em Gestão de Políticas Públicas para a Saúde, nas ações para o enfrentamento da doença COVID-19 realizadas pela Secretaria de Estado de Saúde do Distrito Federal (DF). Trata-se de um relato de experiência acerca do processo de trabalho desenvolvido pela Comissão de Apoio Técnico (CAT) à Vigilância Epidemiológica em parceria com o Centro de Operações de Emergências em Saúde Pública do DF, no período de março a abril de 2020. As atividades desenvolvidas foram divididas em cinco etapas e envolveram o recebimento, estruturação e organização de informações dos casos internados suspeitos e confirmados de COVID-19, disponibilizadas diariamente pelas instituições de saúde públicas e privadas do DF. A CAT foi composta por uma equipe multiprofissional, o que favoreceu a integração do trabalho e o processo de ensino-aprendizagem. Os PSR atuaram na identificação de entraves e contribuíram no aprimoramento dos fluxos de trabalho, bem como na utilização de um Sistema de Informação em Saúde (formulários *online* - FormSUS) para a celeridade e monitoramento das informações. A notificação imediata dos casos é necessária para que medidas de prevenção e controle ocorram em tempo oportuno, especialmente em cenários de pandemia. A atuação dos PSR contribuiu para o fortalecimento das ações de vigilância epidemiológica e para um trabalho integrado e qualificado, subsidiando a tomada de decisão pelos gestores no enfrentamento da COVID-19 no DF.

Palavras-chaves: Vigilância em Saúde Pública; Pandemias; Infecções por Coronavírus; Capacitação em Serviço; Sistemas de Informação.

Resumen

Se objetiva con este trabajo describir las actividades de los Profesionales de Salud Residentes (PSR), vinculados al Programa de Residencia Multiprofesional en Gestión de Políticas Públicas para Salud, en las acciones para combatir la enfermedad COVID-19, llevadas a cabo por la Secretaría de Estado de Salud de Distrito Federal (DF). Se trata de un informe de experiencia sobre el proceso de trabajo desarrollado por la Comisión de Apoyo Técnico (CAT) para la Vigilancia Epidemiológica en colaboración con el Centro de Operaciones de Emergencias en Salud Publica de Distrito Federal, en el periodo de marzo a abril de 2020. Las actividades desarrolladas se dividieron en cinco etapas, involucrando el recibimiento, la estructuración y organización de informaciones de los casos internados sospechosos y confirmados de COVID-19, disponibles diariamente por las instituciones de salud pública y privada de DF. La CAT ha reunido un equipo multiprofesional, lo que favoreció la integración del trabajo y del proceso de enseñanza y aprendizaje. Los PSR actuaron en la identificación de los obstáculos y contribuyeron a la mejora de los flujos de trabajo, así como en la utilización del Sistema de Información en Salud (formulario in línea – FormSUS) para la eficiencia y monitoreo de las informaciones. La notificación inmediata de los casos se hace necesaria para que medidas de prevención y

controle ocurran en tiempo oportuno, especialmente en escenarios de pandemia. La actuación de los PSR contribuyó para fortalecer las acciones de vigilancia epidemiológica y para un trabajo integrado y cualificado que apoya la toma de decisiones por parte de los gestores en el combate de la COVID-19 en DF.

Palabras clave: Vigilancia en Salud Pública; Pandemias; Infecciones por Coronavirus; Capacitación en Servicio; Sistemas de Información.

Introduction

By the end of January 2020, the World Health Organization (WHO) characterized the disease caused by the coronavirus (COVID-19) as a Public Health Emergency of International Concern. On March, WHO announced a global pandemic due to the alarming levels of spread and severity (WHO, 2020a). The detection of this new respiratory disease was followed by uncertainties regarding its epidemiological characteristics and, particularly, regarding the spread and virulence of the pathogen involved (SARS-COV-2 virus). COVID-19 was originally detected in the city of Wuhan in the province of Hubei, China, in December 2019, and presents a variable clinical spectrum, which includes from asymptomatic to severe cases, with transmission occurring from person to person, through droplets of saliva or nasal discharge. To this date, there are no specific vaccines neither established treatments (WHO, 2020b; BRASIL, 2020a).

Aiming to present a rapid resolution for critical situations, the Public Health Emergency Response Plan of Brazilian Ministry of Health (2013) determined that the Emergency Operations Center (EOC) started operating. and attributed to Department for Surveillance in Health (DSH) the responsibility of its activation, according to the analysis of all available information. EOC professionals are called upon by the coordinator of the involved departments and use the framework of the Center for Strategic Information on Health Surveillance (CSIHS) as the head office for carrying out planning, organizing, coordinating, evaluating and controlling the response actions of a specific event.

In the Federal District (FD), a local regulation (Decree nº 40.475 of February 28, 2020), determined a public health emergency situation due to the spreading risk

of the new coronavirus. Thus, through Decree No. 127 of February 27, 2020 a specific EOC for COVID-19 combat was instituted in the FD. The management of the Strategic Operations Center is under the responsibility of the Epidemiological Surveillance Direction (ESD) of the Health Department of the FD, which has full support from other institutions to carry out the following tasks: analysis of the patterns of occurrence, distribution and confirmation of suspected cases of COVID-19 that occurred in the FD; elaboration of surveillance and assistance protocols and laboratory flows according to guidelines defined on national level; organization of actions aiming to train the health care professionals; grant allowance to managers through technical information (DISTRITO FEDERAL, 2020a).

In this regard, the fundamental role of Epidemiological Surveillance (ES) stands out in the organization of health systems, through actions that enhance identification, detection, notification, registration, investigation and monitoring of cases, in addition to gathering, processing, analysis and interpretation of data, considering the characteristics of the health determinants or conditions of the population (BRASIL, 1990). For the fulfillment of the actions within its competence, it is necessary the performance of a qualified team, which uses Health Information Systems (HIS) as a support tool, focusing on the adoption of the appropriate prevention and disease control recommendations, as well as health promotion actions (BRASIL, 2020a).

Since all surveillance sectors act at the epicenter of epidemics, it also play a role as an space for in-service training of several professionals, such as physicians s, nurses, physiotherapists, speech therapists, social workers and sanitarians, contributing to the preparedness of this workers to real epidemiological situations and connecting academic knowledge to service (ESCOSTEGUY; MEDRONHO; ANDRADE, 2019).

On this basis, the Multiprofessional Residencies in Health, regulated by Federal Law No. 11.129 of 2005, stands out as a lato sensu modality of postgraduate education. It is noteworthy that residencies are oriented towards in-service training in congruence with the principles and guidelines of the Brazilian Unified Health System (UHS) and enable an articulation between educational institutions, health services and the community, according to the local reality. In addition, the work of Resident Health

Professionals (RHPs) enable a new model of management and health care through the development and improvement of critical and reflexive actions (BRASIL, 2005; MELLO et al., 2019).

Giving the relevance of this topic, the present work aims to describe the activities developed by the RHPs linked to Multiprofessional Residency Programs in Public Health Policies Management (MRPPHPM) in the actions to face the disease COVID-19 carried out by the Health Department of the FD.

Materials and Methods

This article describes an experience report of coronavirus combat actions developed by RHPs from Public Health Policies Management Programs and professionals from the ESD, from March to April 2020.

Initially, the actions developed by the CSIHS - the ESD area involved in ES - were highlighted in the early phase of response, identification and investigation of suspected cases (individuals with fever and/or at least one respiratory sign or symptom associated with: history travel to local transmission area; or history of close contact with suspects; or history of close contact with confirmed case for coronavirus in the last 14 days prior to the onset of signs and symptoms) and confirmed cases (individuals with laboratory confirmation, independent of signs and symptoms) of coronavirus (BRASIL, 2020b; DISTRITO FEDERAL, 2020d), as well as the data analysis publicized to government managers and population. In order to strengthen and expand the response capacity to COVID-19, two actions were listed: the recruitment of professionals supporting the work team - professionals from ESD and residents - and the setup of strategies to ensure the connection between actions of involved in sectors of ESD. Due to the urgency of these operations, work were arranged in three work front: (1) identification and validation of notifications of suspected and confirmed cases, composing the government's panel, analyzing the data and preparing the epidemiological publications ; (2) monitoring hospitalized patients with suspected or confirmed with COVID-19; (3) investigation of suspected and confirmed deaths from COVID-19.

Thereafter, the surveillance of Influenza and other respiratory viruses (sentinel of Flu Syndrome and Severe Acute Respiratory Syndrome) was strengthened, as foreseen in the contingency plan; reassessing the work fronts according to the objectives of the ES. In this circumstance, residents and professionals of the ESD were invited to collaborate in the monitoring of suspected and confirmed cases of COVID-19 admitted to public and private hospitals, emergency care units and home care services. Right at the beginning of this activity, it was evident that necessity of the team to move forward in death investigating actions.

The RHPs are linked to two educational institutions, Oswaldo Cruz Teaching and Research Foundation and the School of Health Sciences of the Federal District. ESD professionals guided residents about the importance of this work and its emergency and dynamic characteristics. Then, they conducted in-service training, emphasizing on daily work processes, such as: phone contact with health institutions; receiving, organizing and consolidating data sent by institutions; and providing information on hospitalizations and case evolution.

For this purpose, an existing spreadsheet was improved and later migrated to Google Sheets platform - Google's online platform that allows user to prepare and share spreadsheets with other professionals, enabling real-time editing s by all involved. It- holds daily information sent by health units to the new e-mail address specifically developed to COVID-19 surveillance in the FD.

Afterwards, a form was created on a specific virtual platform named FormSUS (APPENDIX A), answered by each notifying health unit. This online form was designated "COVID-19 Suspected or Confirmed Case Notification Form". The mandatory information were: patient identification - name, date of birth, sex, place of residence and telephone; clinical data - date of onset of symptoms, date of hospitalization, hospitalization unit (emergency, clinical unit or intensive care unit); tests for COVID-19 - date of collection, type (viral test/RT-PCR or antibody test) and name of the laboratory where the exam was performed; need for ventilatory support; hospital discharge date and type; whether there was death and the date of death. All information received was

consolidated and stored in standardized spreadsheets in Excel format (Microsoft Office suite), classified by received date and institution.

Aiming to systematize work processes, activities were distributed into five priorities. The first priority consisted on the telephone contact with health institutions, in order to highlight the importance of send data in appropriate time, and thus avoid the discontinuity of work by the sectors responsible for the epidemiological surveillance and death investigation.

Moreover, standard procedures for phone calls were developed by the RHPs and guiding the correct use of FormSUS for notification of hospitalized cases and death investigation. It was requested to the health institutions to fill in the FormSUS for notification of hospitalized cases until 11 am, while these data were monitored by a Google spreadsheet called "Support Worksheet" (Appendix B), in the first tab, "Checking phone calls to Health Institutions". In addition, a mechanism for highlighting the actions' status throughout colors (conditional formatting) was used - the green color represented the fulfillment of the activity and the red the non-fulfillment.

The second priority was checking the filling in of the FormSUS f notification of hospitalized cases. The verification of this submission was also carried out by checking the Support Worksheet, in the second tab named "FormSUS". The third priority consisted of downloading FormSUS form in Excel compatible format to a shared folder, available on the institutions' own network. To monitor this activity, the Support Sheet was also used, in the third tab, "Saved and Updated Sheets". Then, the spreadsheet that monitored data of hospitalized suspect or confirmed cases with COVID-19 was provided and updated, called "Main Spreadsheet" (APPENDIX C). This spreadsheet was settled up in different tabs: suspected cases, confirmed cases, hospital discharge of confirmed cases, suspected and confirmed deaths. Data partial closing was daily (until 14 pm) and was shared with the EOC.

Each tab of the "Main Worksheet" created a data panel, called "Summary Panel" (APPENDIX D), from the automatic consolidation of data through formulas applied to the work sheets cells. The Summary Panel was available online, through Google Drive,

for viewing by the EOC, allowing live monitoring and updated information added in periodic epidemiological publications.

The fourth priority consisted on verifying issues in the notification of hospitalized case FormSUS forms, generally related to the absence of specific but essential information related to case surveillance. In this regard, residents contacted the institutions by phone calls or email, requesting the missing or conflicting information. These actions were recorded in a specific document for pendency monitoring, available on Google Drive, with the following factors: date, name of the institution and description of the issue.

The fifth priority consisted of checking on the data source, case-by-case. Residents confirmed whether the data obtained on the FormSUS forms was consistent with data in the Main Worksheet. The information checked were institution and place of hospitalization, laboratory where the exam was collected, test result for COVID-19, ventilatory support and case evolution (maintaining hospitalization, discharge or death). In case of conflict, due to the lack of updating, the information was included in the Pendency Spreadsheet (APPENDIX B). On the other hand, if there was a mistake in the provided data, corrections were immediately performed.

It is worth noticing that the applied processes and tools remain improving and adapting, according to EOC's goals. Therefore, this article presents as a reflective report the main issues related to the establishment of work processes in epidemiological surveillance.

Results

The work processes were enhanced due to the performance of resident health care professionals and contributed to the surveillance strengthening, as well to the COVID-19 combat in the FD. The ESD existing different professionals' categories, for instance, Medicine, Nursing and Physiotherapy - added to other resident's professionals' categories such as Nursing, Social Work and Public Health - contributed

to work team connection as well as teaching-learning process, specifically related to the multidisciplinary team actions.

In concern to the first established priority (phone calls to health institutions), it was observed that systematic contact with both epidemiological surveillance and hospital death review committee significantly improved the form (FormSUS) adherence and response. the absence of a settled and operating death review committee in some institutions, the lack of specific sectors responsible for ES actions in private health care sector, the non-functioning of sectors during weekends and holidays, despite the obligation to register and notify daily government authorities and the lack of knowledge about the flows for notification, updating and investigation of COVID-19 cases were considered limitations to the effectiveness of this first activity.

Regarding to the second defined priority (received data by health institutions), there was a need to organize and categorize the received emails. Thus, date markers with institutions names were used. Nevertheless, receiving data by the FormSUS form was considered as a notable gain, since it enabled a standard collection of data, contributing toward to, the consistency of information. The limitations observed in this activity included the late share of data by health institutions (out of the established deadline), and the need to train the professionals of these health institutions regarding the notification and information update throughout the FormSUS. Thereby, a step by step instructional manual was developed and the work team was promptly available to solve issues and doubts by phone calls or email.

Migrating data to Google Sheets was necessary due to the need of availability of data to more than one person of the team. At the beginning, only one person at a time could access the file on the local network, which gathered register data activity, while number of notifications significant increased over time. The Limitations found were the lack of standard procedures of sent data, inconsistency of information provided by health institutions, reduced number of staff working and the absence of a satisfactory HIS.

The development and use of the online Main Spreadsheet (third priority) generated benefits, such as the improvement of teamwork, increment on the reliability

of registered data and automatic calculation of panel data. These panels enabled a quick check of hospitalized cases by COVID-19 overview, through graphs and charts, with systematic data analysis.

During the check of pending issues (fourth activity), some gaps were noted in suspected and confirmed cases data provided, for instance: lack of daily update of FormSUS form, unreported results of laboratory tests (RT-PCR and Rapid Test for COVID-19), interhospital transfer unsigned in the system, deaths without communication and investigation, lack of information on discharge for home isolation or complete recovery. Moreover, pending issues also included the description of work processes organization activities, aiming enhance communication among team members. Another spreadsheet on the *Google* cloud was created to monitor these issues containing: date, patient's name, health institution, description of the issue and the need conduct (APPENDIX B).

The double-checking process (fifth activity) evidenced that some data keep unnoticed by the team, may be due to the growing amount of information received daily and also to the limitation of the human factor in the health work process.

Aiming to standardize the performed work process and speed up the demand's accomplishment, a document containing the respective work process flows was developed by the residents, since the growth of hospitalized cases consequently contributed toward an increase in the amount of received information. Besides, this tool can be further used in the training of new team members.

Throughout these process of standardizing surveillance work, educational support and guidance provided by professionals with experience in the service was crucial In this regard, the development of different skills were enabled, such as: pro activity and learning engagement; communication and interpersonal relationships; creativity; accomplishment of deadlines and goals of daily activities; ability to suggest service improvements and teamwork. Nevertheless, it is worth mentioning the identified technical skills that contributed to professional performance, namely: the cases' analysis and investigation, registration of information, the data check, the

technical use of information systems, the monitoring and standardization of work processes.

Discussion

The literature is scarce regarding the performance of Multiprofessional Residencies in Health in EP and about COVID-19 combat. For this reason, the present experience report contributed toward the visibility of the actions carried out in the daily life of services during a pandemic scenario. In addition, combat measures fit as an answer to the national contingency plan and the recent scientific findings regarding COVID-19. The improved actions described in this study contributed to the emergency response systems readiness ; increased capacity to detect and assist patients; space, supplies and teams needed guaranteed in health services - necessary measures to slow the spread and prevent the health systems from becoming overloaded, due to seriously COVID-19 ill patients (BRASIL, 2020b).

According to WHO, EP can adopt two types of notification strategies: case-based or aggregated. The first strategy is related to suspected and confirmed cases notification form fulfillment for. The second refers to the consolidation of aggregated surveillance data (weekly number of confirmed cases, deaths, confirmed cases hospitalized and discharged, among others). For these notifications, the instruments are described (loading of an Excel file into the system or entering data using the available platform) and other instructions for presenting data at national level, from the municipal and state aggregates (WHO, 2020c; OPAS, 2020).

Rapid, concise and adequate information in an epidemic is an extremely necessary premise to face the situation. A Health Information System (HIS) that addresses these characteristics is difficult to find among the existing systems, whether in the Hospital Information System (HIS-UHS) or in the Mortality Information System (MIS). Thus, it was necessary to create a "Parallel Information System" that would respond to the EOC needs.

In this sense, FormSUS was adopted, which was initially created for public health managers and successfully adapted to the Epidemiological Surveillance Services (ESS), generating subsidies for their performance, estimating the health problem evolution and favoring appropriate interventions and prevention measures. It is worth mentioning that the forms are the tools that give autonomy to data creation and dissemination in a safe environment (MIRANDA et al., 2018).

According to Decree No. 199, of October 1, 2014, from HD / FD, ESS operate from Monday to Friday, except on holidays, during business hours (DISTRITO FEDERAL, 2014). While the CSIHS / FD opening time comprises 24 hours a day during the seven days of the week, the local epidemiological surveillance (health regions and health units) opening hours is from Monday to Friday. Therefore, underreporting is recurrent on the part of the Hospital Epidemiology Centers (HEC) (SANTANA; CARVALHO; CARVALHO, 2018). In the present study, we observed that some hospitals did not address the information availability deadlines, highlighting barriers in the accomplishment of the rules established by this Decree.

Underreporting contributes to gaps in information provided for monitoring, analysis and accurate interpretation of the evolution in the number of cases and impairments to the development of intervention strategies that are effective to disease spread (GOTO et al., 2016). The limitations may be related to the framework, such as the unavailability of computers and adequate physical space, or to insufficient and unskilled human resources, which may contribute to work overload, forms full field incorrectly, duplication of cases and missing data.

In addition, notification of diseases and conditions is an essential action done by EVS, especially in a pandemic scenario. Notification must take place immediately, within 24 hours from the knowledge of the occurrence, through the available means of communication, being mandatory for all health professionals responsible for public and private services who provide health care. The shorter time elapsed between the occurrence, the notification and the report development to provide the information contribute toward surveillance measures. (SANTANA; CARVALHO; CARVALHO, 2018). Therefore, immediate notification is mandatory for prevention and control measures to

occur in a timely manner, especially in cases of high dissemination potential diseases during outbreaks and pandemics, as occurs with COVID-19.

Regarding health tools and technologies, managers face daily health information even though they might recognize that the full potential of HIS is not used. Therefore, systems should be managed by trained professionals, besides being organized and interconnected. During urgent health moments, the absence of a HIS with a systemic and integrated approach results in partial acceptance of cases and also may negatively affect data analysis and interventions t. In the work processes experienced by the RHPs, the lack of an established system was evidenced, which hindered an expanded analysis of the data. This deficiency in the HIS might reflects on the data quality and reliability, since the constant demand for information. Therefore, an integrated HIS contributes to the data reliability and to the real epidemiological situation representativeness (PINHEIRO et al., 2016; RIBEIRO et al., 2014).

Digital platforms, computational resources and technological tools offer resources and tools that have been integrated into the work processes. Learning skills and different languages abilities, including technological and digital, is highlighted as an urgent need to this challenging society which is facing a dynamic process of transformation and renewal. New Information and Communication Technologies (NICT) appear with the purpose of facilitating daily practices. The use of Google Spreadsheets, available online and free of charge, allows simultaneous use by multiple users, in a single document, which automatically saves all changes made. The spreadsheets are stored in the Google Drive tool that corresponds to a cloud storage environment that allows access to documents through the internet, disabling the install programs need and allowing greater control over the produced content (CAMPOS et al., 2018; MORAES; MONTEIRO, 2017; SOUSA et al., 2017).

Considering its many competencies, the ES service in the Federal District constituted itself as a scenario with great potential for the development of skills, combined with the critical-reflective thinking promoted by health residences.

Dallegrave and Ceccim (2018) and Oliveira (2015) highlight the need of arranging residents' activities with managers, preceptors, users and other residents, in

accordance with the performance dynamics in health services. In this regard, the pedagogical model constitutes a concrete space to strengthen training and cooperation between education and service. Throughout knowledge exchange and teamwork, the interaction between the professionals' team of and residents may put forward theoretical reflection and practical changes. It is well recognized that this interaction enhances the quality of work processes and interdisciplinary performance.

Nevertheless, the resident's raining process was benefited from the set of professional characteristics and skills developed in micro and macro-regional management, specifically in concern to: evaluation and monitoring of public health policies; public health management tools; use of health technologies (protocols, guidelines, manuals, flows, equipment and computerized systems); environmental, epidemiological and health surveillance; health communication; social determination in health and evidence-based management. Such development has been enabled through pedagogical activities, tutoring meetings and coordination conferences, which might be translated to standardized educational support.

In addition, it is worth mention that professionals who are reliant in their work process establish competences and skills that turn training proposals more consistent and lasting. Thus, it is no longer possible to think about the health education process without discussing the education-service articulation. Although there are some professional practices standards, the educational processes are diverse while strengthens daily life and teaching-learning meetings. Therefore, social recognition of the quality of training during residence it is crucial, especially regarding interprofessional training, interdisciplinary knowledge, comprehensive care, invention and innovation in the development of care technologies and knowledge about health systems (OLIVEIRA, 2015; DALLEGRAVE; CECCIM, 2018).

Conclusion

In-service training associated with supervision and educational support enabled the development of skills of cooperation, leadership and trust among team members;

besides contributing towards an integrated and qualified work. The constant communication among different actors of FD's health system and the evolvement in different activities reinforced the articulation and insertion of the residents in the epidemiological surveillance, overcoming the learning expectations.

The use of tech tools and data management instruments t among the involved sectors, enabled the expansion and strengthening of epidemiological surveillance in the pandemic combat. Moreover, n, the f residents actions contributed to improve work processes, allowing a faster and more effective response concerning to the data production and availability for managers to combat COVID-19 in the FD.

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APPENDIX A - FORMSUS FORM

- FICHA DE NOTIFICAÇÃO DE CASOS SUSPEITOS OU CONFIRMADOS DE COVID-19 DF

* Preenchimento Obrigatório
Atenção: nos campos marcados com 'Visível ao público' não devem ser colocados dados de sua intimidade e privacidade.
Clique aqui em caso de dúvidas relativas a este formulário.

Estabelecimento de Saúde

1) **Nome do estabelecimento de saúde:** *(Visível ao público)

Identificação dos casos

Preencha as informações de identificação sobre os casos suspeitos ou confirmados internados na unidade

2) **Nome:** *(Visível ao público)
Nome completo da pessoa considerada como caso suspeito ou confirmado

3) **Nome da mãe:** *(Visível ao público)
Nome da mãe da pessoa considerada como caso suspeito ou confirmado

4) **Data de Nascimento :** *(Visível ao público)
Data de nascimento da pessoa considerada como caso suspeito ou confirmado - Dia/Mês/Ano 99/99/9999

5) **CPF :** (Visível ao público)
Informe o CPF da pessoa considerada como caso suspeito ou confirmado

6) **Endereço residencial :** *(Visível ao público)
Informar endereço residencial da pessoa considerada como caso suspeito ou confirmado

7) **UF:** *(Visível ao público)
Unidade Federativa de residência da pessoa considerada como caso suspeito ou confirmado

9) **Telefone para contato:** *(Visível ao público)
Informe ddd e número da pessoa considerada como caso suspeito ou confirmado- apenas números

10) **Sexo:** *(Visível ao público)
Informar o sexo da pessoa

- Masculino
- Feminino

11) **Profissão:** *(Visível ao público)
Profissão da pessoa considerada como caso suspeito ou confirmado

12) **Trabalha no setor saúde (hospital/UPA/Home Care)?** *(Visível ao público)
Informar se o caso suspeita ou confirmada trabalha no setor saúde em hospital/UPA/Home Care.

- Sim
- Não

Dados da história clínica e internação

Dados da história clínica e internação dos casos suspeitos ou confirmados

13) **Data de início dos sintomas:** *(Visível ao público)
Informe a data de início dos sintomas

14) **Data da internação no hospital/UPA/HomeCare:** *(Visível ao público)
Data que o caso suspeito ou confirmado foi internado no hospital/UPA/HomeCare

15) **Possui comorbidades?** *(Visível ao público)
Informar as comorbidades pré-existentes

- [ ] Diabetes Mellitus I
- [ ] Diabetes Mellitus II
- [ ] Hipertensão Arterial Sistêmica
- [ ] Cardiopatia (especifique no próximo item)
- [ ] Outras doenças imunossupressivas (especifique no próximo item)
- [ ] Doença Respiratória (especifique no próximo item)
- [ ] Neoplasia em tratamento (especifique no próximo item)
- [ ] Tabagismo
- [ ] Obesidade
- [x] Outras comorbidades (especifique no próximo item)
- [ ] Sem comorbidade

16) **Qual comorbidade ?** *(Visível ao público)
Descreva a comorbidade pré-existente, caso exista.

Dados de evolução do caso - ATUALIZAR DIARIAMENTE

Os dados devem ser atualizados sempre que houver alteração do exame ou quadro clínico do paciente

17) **Realizou exame para COVID-19?** *(Visível ao público)
Informe se o material biológico já foi coletado para exame de COVID-19.

- (•) Sim
- ( ) Não

18) **Qual exame laboratorial?** *(Visível ao público)
Informar exame realizado

- ( ) Teste rápido
- ( ) RT-PCR
- (•) Outros (especificar no próximo item)

19) **Especifique exame laboratorial:** *(Visível ao público)
Descreva qual foi o outro exame laboratorial realizado

20) **Qual laboratório que realizou o exame?** *(Visível ao público)

- ( ) Fleury
- ( ) Lacen
- ( ) Sabin
- ( ) DASA
- ( ) DB - Diagnóstico do Brasil
- ( ) Limonge
- ( ) Exame
- (•) Outro (especifique no próximo item)

21) **Especifique o laboratório que foi realizado o exame:** *(Visível ao público)

22) **Resultado do exame COVID-19:** *(Visível ao público)
Informar o resultado do exame para COVID-19

- ○ Detectado
- ○ Não Detectado
- ○ Inconclusivo
- ○ Aguardando resultado

23) **Realizou painel viral?** *(Visível ao público)
Informe se realizou painel viral

- ○ Sim
- ○ Não

24) **Setor de internação:** *(Visível ao público)
Setor de internação na unidade de saúde

- ◉ Unidade de Terapia Intensiva (UTI) / Semi-intensiva
- ○ Enfermaria / Unidade de Internação / Quarto
- ○ Emergência / Box/ Sala Vermelha / Sala Amarela

25) **Data de internação na Unidade de Terapia Intensiva / Semi-intensiva?** *(Visível ao público)
Informe a data de internação da pessoa na Unidade de Terapia Intensiva / Semi-intensiva

26) **Recebeu alta da Unidade de Terapia Intensiva/Semi-Intensiva?** *(Visível ao público)
Informar se houve alta da Unidade de Terapia Intensiva/Semi-intensiva.

- ◉ Sim
- ○ Não

27) **Data que recebeu alta da Unidade de Terapia Intensiva/ Semi-intensiva.** *(Visível ao público)
Informar a data que a pessoa recebeu alta da Unidade de Terapia Intensiva/Semi-Intensiva para internação

28) **Encontra-se em ventilação mecânica?** *(Visível ao público)
A pessoa depende do ventilador mecânico para respirar?

- ○ Sim
- ○ Não

29) **Evolução do caso:** *(Visível ao público)
Informa atual situação acerca da evolução do caso

- ○ Internado
- ◉ Alta hospitalar (para domicílio)
- ○ Alta hospitalar por transferência para outra unidade hospitalar (especifique a unidade hospitalar no próximo item)
- ○ Óbito

30) **Data da alta hospitalar (para domicílio):** *(Visível ao público)
Informe a data da alta hospitalar (para domicílio)

29) **Evolução do caso:** *(Visível ao público)
Informa atual situação acerca da evolução do caso

- ○ Internado
- ○ Alta hospitalar (para domicílio)
- ○ Alta hospitalar por transferência para outra unidade hospitalar (especifique a unidade hospitalar no próximo item)
- ◉ Óbito

34) **Data do óbito:** *(Visível ao público)
Data do óbito - Dia/Mês/Ano 99/99/9999 (campo 2 da D.O)

35) **Última data de atualização do formulário:** *(Visível ao público)
Informe a última data que este formulário foi atualizado

36) **Nome completo do profissional que realizou a última atualização do formulário:** *(Visível ao público)
Nome completo do profissional que preencheu o formulário pela última vez (quem está fazendo a atualização neste momento).

APPENDIX B - SUPPORT WORKSHEET

Controle de Contato por ligação ou email do COE ABRIL DE 2020					
Estabelecimentos de Saúde	16	17	18	19	20
HOSPITAIS					
H. CLÍNICAS E FRATURAS	ok	ok	ok	ok	ok
HOSPITAL ALBERT SABIN	ok	ok	ok	ok	ok
HOSPITAL ALVORADA		ok		ok	ok
HOSPITAL ANCHIETA	ok	ok		ok	ok
HOSPITAL ANNA NERY		ok	ok	ok	ok
HOSPITAL BRASILIA		ok	ok	ok	
HOSPITAL DA CRIANCA DE BRASILIA (HCB)		ok	ok	email enviado	ok
HOSPITAL DA FORÇA AÉREA DE BRASILIA (HFAB)	ok	ok	ok	ok	ok
HOSPITAL DAHER		ok	ok	ok	ok
HOSPITAL DAS FORÇAS ARMADAS (HFA)	email enviado	ok	ok	ok	
HOSPITAL DE ÁGUAS CLARAS		ok	ok	ok	ok
HOSPITAL DE APOIO DE BRASILIA (HAB)	ok	ok	ok	ok	ok
HOSPITAL DF STAR		ok	ok	ok	ok
HOSPITAL DO CORAÇÃO DO BRASIL (HCBR)	ok	ok		ok	ok
HOSPITAL HOME	ok	ok		ok	ok
HOSPITAL MARIA AUXILIADORA		ok	ok	ok	
HOSPITAL MATERNO INFANTIL DE BRASÍLIA (HMIB)		email enviado	não atendeu	email enviado	
HOSPITAL REGIONAL DA ASA NORTE (HRAN)	ok	ok	ok	ok	
HOSPITAL REGIONAL DA REGIÃO LESTE (HRL)	não atendeu	ok	ok	ok	
HOSPITAL REGIONAL DE BRAZLÂNDIA (HRBz)		ok	email enviado	email enviado	
HOSPITAL REGIONAL DE CEILÂNDIA (HRC)		ok	ok	ok	
HOSPITAL REGIONAL DE PLANALTINA (HRPl)		ok	ok	ok	
HOSPITAL REGIONAL DE SAMAMBAIA (HRSAM)	não atendeu	ok	ok	ok	
HOSPITAL REGIONAL DE SANTA MARIA (HRSM)		ok	ok	ok	
HOSPITAL REGIONAL DE SOBRADINHO (HRS)	ok	ok	ok	ok	
HOSPITAL REGIONAL DE TAGUATINGA (HRT)		ok	ok	ok	
HOSPITAL REGIONAL DO GAMA (HRG)	ok	ok	ok	ok	
HOSPITAL REGIONAL DO GUARÁ (HRGu)	ok	ok	ok	ok	ok

Estab hospitalares e UPAs - DF	Mês: Março						
	24	25	26	27	28	29	30	31
DOMED			ok		ok		ok	ok
Hospital de APOIO DE BRASILIA		ok	ok	ok			ok	ok
HSDF			ok	ok			ok	
Hospital Alvorada de Brasília		ok	ok	ok			ok	ok
Hospital ANCHIETA	ok	ok	ok	ok	ok	ok	ok	ok
Hospital Anna Nery	ok	ok	ok	ok		ok	ok	ok
Hospital BRASILIA				ok			ok	ok
Hospital da criança de Brasília J Alencar - HCB								
Hospital das Forças Armadas		ok	ok	ok	ok	ok	ok	ok
Hospital DF Star		ok	ok		ok	ok	ok	ok
Hospital do Coração do Brasil		ok	ok	ok			ok	ok
Hospital Dr Albert Sabin	ok		ok	ok	ok	ok	ok	ok
Hospital HOME			ok		ok	ok	ok	
Hospital Lago Sul (H Daher)			ok	ok			ok	ok
Hospital Maria Auxiliadora (Antigo Mater Dei)		ok	ok	ok			ok	
Hospital SANTA HELENA		ok	ok	ok			ok	ok
Hospital SANTA LUCIA Norte		ok	ok	ok		ok	ok	ok
Hospital SANTA LUCIA Sul		ok	ok	ok			ok	ok
Hospital SANTA LUZIA			ok	ok	ok	ok	ok	ok
Hospital SANTA MARTA		ok	ok	ok			ok	ok
Hospital SÃO FRANCISCO		ok	ok	ok	ok	ok	ok	ok
Hospital São Mateus		ok	ok	ok		ok	ok	ok
HOSPITAL SARAH			ok	ok			ok	ok
Hospital das Clínicas e Fraturas					ok		ok	ok
Hospital Sírio Libanes		ok	ok	ok	ok	ok	ok	ok
Hospital Universitário de Brasília								
HR LESTE/PARANOÁ								
HR SAMAMBAIA								ok
HR SOBRADINHO								

APÊNDICE B - PLANILHA DE APOIO

Estab hospitalares e UPAs - DF	PLANILHA SALVA	ATUALIZAÇÃO PLANILHA ONLINE	PLANILHA SALVA	ATUALIZAÇÃO PLANILHA ONLINE
	23/04/2020		24/04/2020	
HOSPITAL DO CORAÇÃO DO BRASIL (HCBR)	OK	OK		
HOSPITAL HOME	OK	OK	OK	OK
HOSPITAL MARIA AUXILIADORA	OK	OK	OK	OK
HOSPITAL MATERNO INFANTIL DE BRASÍLIA (HMIB)	OK	OK	OK	SEM CASOS
HOSPITAL REGIONAL DA ASA NORTE (HRAN)	OK	OK	OK	OK
HOSPITAL REGIONAL DA REGIÃO LESTE (HRL)	OK	OK	OK	OK
HOSPITAL REGIONAL DE BRAZLÂNDIA (HRBZ)	OK	OK	OK	OK
HOSPITAL REGIONAL DE CEILÂNDIA (HRC)	OK	OK	OK	OK
HOSPITAL REGIONAL DE PLANALTINA (HRPL)	OK	OK	OK	OK
HOSPITAL REGIONAL DE SAMAMBAIA (HRSAM)	OK	OK		
HOSPITAL REGIONAL DE SANTA MARIA (HRSM)	OK	OK	OK	OK
HOSPITAL REGIONAL DE SOBRADINHO (HRS)	OK	OK	OK	OK
HOSPITAL REGIONAL DE TAGUATINGA (HRT)	OK	OK	OK	OK
HOSPITAL REGIONAL DO GAMA (HRG)	OK	OK	OK	OK
HOSPITAL REGIONAL DO GUARÁ (HRGU)	OK	SEM CASOS	OK	SEM CASOS
HOSPITAL SANTA HELENA	OK	OK	OK	OK
HOSPITAL SANTA LÚCIA NORTE	OK	OK	OK	OK
HOSPITAL SANTA LÚCIA SUL	OK	OK	OK	OK
HOSPITAL SANTA LUZIA	OK	OK	OK	OK

PENDÊNCIAS DE PACIENTES

DATA DE VERIFICAÇÃO DA PENDÊNCIA	NOME	DATA DE ATUALIZAÇÃO	PENDÊNCIA	ESTABELECIMENTO DE SAÚDE	CONDUTA	OBSERVAÇÃO
					LIGAÇÃO	
					EMAIL ENVIADO	
					PENDENTE	
					WHATSAPP ENVIADO	

APPENDIX C - MAIN SPREADSHEET

MONITORAMENTO CASOS CONFIRMADOS COVID-19

NOME DO ESTABELECIMENTO DE SAÚDE	NOME:

DADOS DE IDENTIFICAÇÃO DOS PACIENTES

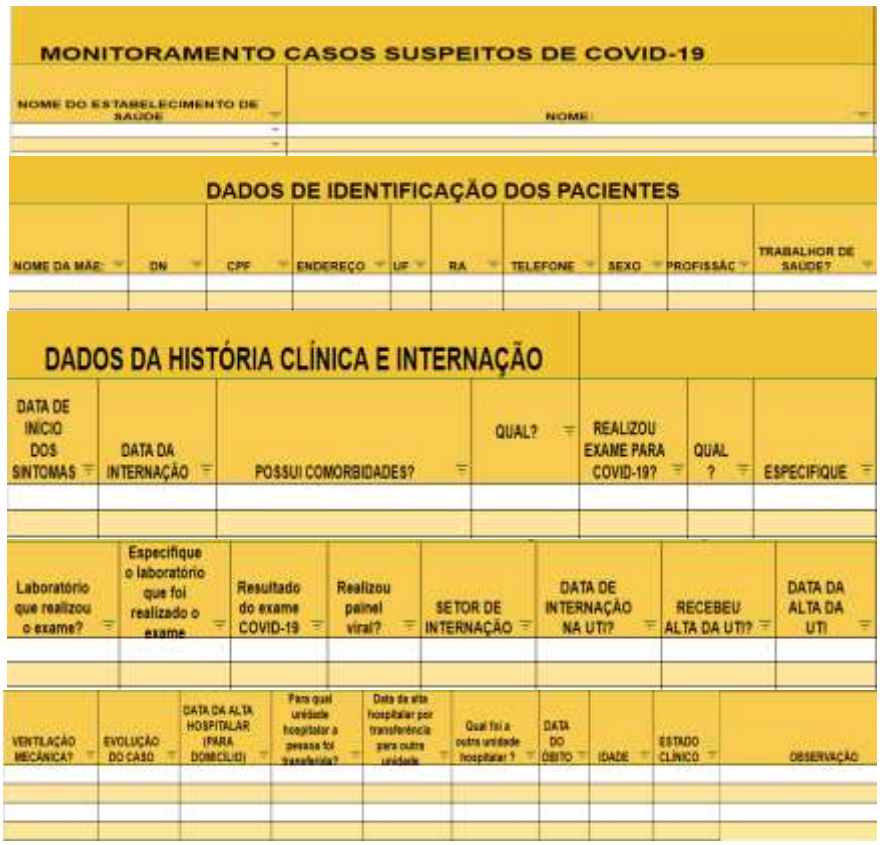
NOME DA MÃE:	DN	CPF	ENDEREÇO	UF	RA	TELEFONE	SEXO	PROFISSÃO	TRABALHADOR DE SAÚDE?

DADOS DA HISTÓRIA CLÍNICA E INTERNAÇÃO

DATA DE INÍCIO DOS SINTOMAS	DATA DA INTERNAÇÃO	POSSUI COMORBIDADES?	QUAL?	REALIZOU EXAME PARA COVID-19?	QUAL ?	ESPECIFIQUE

Laboratório que realizou o exame?	Especifique o laboratório que foi realizado o	Resultado do exame COVID-19	Realizou painel viral?	SETOR DE INTERNAÇÃO	DATA DE INTERNAÇÃO NA UTI?	RECEBEU ALTA DA UTI?	DATA DA ALTA DA UTI

VENTILAÇÃO MECÂNICA?	EVOLUÇÃO DO CASO	DATA DA ALTA HOSPITALAR (PARA DOMICÍLIO)	Para qual unidade hospitalar a pessoa foi transferida?	Data da alta hospitalar por transferência para outra unidade	Qual foi a outra unidade hospitalar ?	DATA DO ÓBITO	IDADE	ESTADO CLÍNICO	TEMPO DE INTERNAÇÃO (DIAS)	OBSERVAÇÃO



MONITORAMENTO CASOS SUSPEITOS DE COVID-19

NOME DO ESTABELECIMENTO DE SAÚDE	NOME:

DADOS DE IDENTIFICAÇÃO DOS PACIENTES

NOME DA MÃE:	DN	CPF	ENDEREÇO	UF	RA	TELEFONE	SEXO	PROFISSÃO	TRABALHOR DE SAÚDE?

DADOS DA HISTÓRIA CLÍNICA E INTERNAÇÃO

DATA DE INÍCIO DOS SINTOMAS	DATA DA INTERNAÇÃO	POSSUI COMORBIDADES?	QUAL?	REALIZOU EXAME PARA COVID-19?	QUAL ?	ESPECIFIQUE

Laboratório que realizou o exame?	Especifique o laboratório que foi realizado o exame	Resultado do exame COVID-19	Realizou painel viral?	SETOR DE INTERNAÇÃO	DATA DE INTERNAÇÃO NA UTI?	RECEBEU ALTA DA UTI?	DATA DA ALTA DA UTI

VENTILAÇÃO MECÂNICA?	EVOLUÇÃO DO CASO	DATA DA ALTA HOSPITALAR (PARA DOMICÍLIO)	Para qual unidade hospitalar a pessoa foi transferida?	Data da alta hospitalar por transferência para outra unidade	Qual foi a outra unidade hospitalar ?	DATA DO ÓBITO	IDADE	ESTADO CLÍNICO	OBSERVAÇÃO

APPENDIX D - SUMMARY PANEL

PAINEL RESUMO SUSPEITOS						
			SETOR DE INTERNAÇÃO			
Ordem	Nome do Hospital	Suspeitos internados	INTERNAÇÃO	EMERGÊNCIA	UTI	ÓBITO
41	Hospital SARAH					
42	Hospital Sírio-Libanês					
43	Hospital Universitário de Brasília (HUB)					
44	Instituto de Cardiologia do Distrito Federal					
45	Instituto Hospital de Base do Distrito Federal (IHBDF)					
46	Maternidade Brasília					
47	UTI-DOMED					
	SUBTOTAL HOSPITAIS					
48	Unidade de Pronto Atendimento Ceilândia/Sol Nascente (UPA SOL NASC)					
49	Unidade de Pronto Atendimento de Samambaia (UPA SAM)					
50	Unidade de Pronto Atendimento de São Sebastião (UPA S. Sebastião)					
51	Unidade de Pronto Atendimento de Sobradinho (UPA Sobradinho)					
52	nidade de Pronto Atendimento do Núcleo Bandeirante (UPA N. Bandeirante)					
53	Unidade de Pronto Atendimento do Recanto das Emas (UPA REC)					
	SUBTOTAL UPAS					

PAINEL RESUMO CONFIRMADOS							
			SETOR DE INTERNAÇÃO				
Ordem	Nome do Hospital	CONFIRMADOS INTERNADOS	INTERNAÇÃO	EMERGÊNCIA	UTI	ÓBITO	PACIENTES ENTUBADOS
42	Hospital Universitário de Brasília (HUB)						
43	Instituto de Cardiologia do Distrito Federal						
44	Instituto Hospital de Base do Distrito Federal (IHBDF)						
45	Maternidade Brasília						
46	UTI-DOMED						
47	SVO						
48	HOSPITAL DE ÁGUAS CLARAS						
	SUBTOTAL HOSPITAIS						
47	Unidade de Pronto Atendimento Ceilândia/Sol Nascente (UPA SOL						
48	Unidade de Pronto Atendimento de Samambaia (UPA SAM)						
49	Unidade de Pronto Atendimento de São Sebastião (UPA S. Sebastião)						
50	Unidade de Pronto Atendimento de Sobradinho (UPA Sobradinho)						
51	nidade de Pronto Atendimento do Núcleo Bandeirante (UPA N. Bandeirante)						
52	Unidade de Pronto Atendimento do Recanto das Emas (UPA REC)						
	SUBTOTAL UPAS						
	PRIME						
	VITAL HOME CARE (VITAL HC)						
	VIVENTI HOME CARE (VIVENTI)						
	SUBTOTAL HOME CARE'S						
	TOTAL GERAL						