



SPECIAL ARTICLE

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## Hospital pharmacist experience in a multidisciplinary team in special care settings

### Experiencias del farmacéutico de hospital en el equipo pluridisciplinar en unidades especiales

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#### Abstract

The COVID-19 pandemic is placing huge strain on health systems and professionals. Emergency departments and their pharmacy services have been the first to face this challenge before any other pharmacy units. This article provides a description of the experience of two public hospitals located in the Autonomous Community of Madrid, Spain.

Team working and reciprocal trust have made it possible to meet the unprecedented demand for health services and has facilitated rapid decision making. Strategies have been developed to guarantee the availability, distribution and safe use of medications. Other strategies have included favoring communication within Emergency Departments pharmacy services, and between these services and Emergency Departments during the pandemic.

Multidisciplinary cooperation and information sharing have traditionally formed the base for efficient and quality work, along with solid technologies that guarantee a safe use of medications. The crucial role of information and communication technologies during the pandemic may give rise to a new model of pharmaceutical care, which should not replace face-to-face Emergency Department pharmacist support and advice. Promoting the re-humanization of healthcare and pharmacy services is essential. An adequate technical training and the development of abilities such as flexibility, planning and coordination skills, and an assertive

#### Resumen

La actual pandemia ha puesto al límite la capacidad de respuesta del sistema sanitario y a sus profesionales. Los primeros en enfrentarse a este reto han sido los servicios de urgencias y, con ellos, los farmacéuticos ligados a estas unidades, que han precedido a los del resto de áreas del servicio de farmacia. En este artículo se narra la experiencia en dos hospitales públicos de la Comunidad de Madrid.

El trabajo en equipo y la confianza mutua han permitido abordar una demanda asistencial desorbitada y una rápida toma de decisiones. Se han desarrollado estrategias para garantizar la disponibilidad y la dispensación de medicamentos, y favorecer la mejora en la seguridad de su utilización. Fomentar la comunicación dentro del propio servicio y con urgencias ha sido otra de las estrategias imprescindibles potenciadas durante la pandemia.

La cooperación multidisciplinar y la coordinación de la información siempre serán la base de un trabajo eficiente y de calidad, junto con sistemas informáticos bien desarrollados como pieza clave en la seguridad del proceso de utilización de medicamentos. El impulso de las tecnologías para la información y la comunicación durante la pandemia quizá permita un nuevo modelo de atención farmacéutica que no debería sustituir la actividad presencial del farmacéutico en urgencias; es imprescindible

#### KEYWORDS

Pharmaceutical care; Hospital Pharmacy Services; Clinical pharmacist; Coronavirus; Severe acute respiratory syndrome virus; Pandemic; Emergency Department.

#### PALABRAS CLAVE

Atención farmacéutica; Servicio de Farmacia Hospitalaria; Farmacéutico clínico; Coronavirus; SARS-CoV-2; Pandemia; Urgencias.



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communication and management of emotions will be key to the successful management of unimaginable settings in the future.

## Introduction: Challenges and objective

In March 2020, the current pandemic put an unprecedented strain on hospitals. The Covid-19 pandemic stretched the health system and professionals beyond capacity. The first to face this challenge were emergency medical services (EMS), which orchestrated initial patient care and flow. Pharmacists providing support to EMS also experienced an increase in the workload before other areas of hospital pharmacy (HP). In the third week of March, 3000 patients were waiting in the emergency room for a hospital bed in the Community of Madrid. In view of the overwhelming demand for beds, emergency services were extended to other hospital wards<sup>1,2</sup>.

In this paper, we share the experiences of two public hospitals in the Community of Madrid, Hospital Universitario Príncipe de Asturias in Alcalá de Henares and Hospital Universitario La Paz in Madrid. A description is provided of the challenges confronted, the strategies adopted, and the lessons learned. Moreover, we collected the experiences of our RedFasteR colleagues (hospital pharmacists spanish working group for the provision of pharmaceutical care in the emergency department) across the country. Our goals were to maximize the effectiveness and minimize risks associated with drug therapies in a changing, uncertain and overwhelming scenario. We struggled to provide the best treatment available to our patients.

The main challenges faced were:

- Increase in the demand for healthcare. A total of 11,000 patients were attended in Hospital Universitario La Paz (in Adult Emergency Care) in March 2020, which represents a 12.8% increase with respect to March 2019; the maximum number of COVID-19 cases confirmed in ER in a day was 278, on March 23<sup>rd</sup>.
- The increase in the demand for drugs was so overwhelming that automated dispensing cabinets had to be installed in extended areas of emergency department, despite the ER was originally fitted with four dispensing cabinets.
- Increase in the frequency of drug replacement. The drug units dispensed in March in Hospital Universitario La Paz increased by 80% (129,400) with respect to the same period of 2019. In Hospital Universitario Príncipe de Asturias, 28,100 units were dispensed in March 2020 vs 19,797 the previous year.
- Increase in the number of emergency drug requests. In Hospital Universitario Príncipe de Asturias, a total of 1,160 requests were received vs 236 in the same month the previous before.
- Transfer of patients to repurposed areas that were not fitted with drug stocks or a pneumatic tube for remote dispensing.
- Lack of information of the location of the patient in the repurposed areas of the ER, which complicated drug dispensing.
- Centralized, individualized authorization of the drugs used from the Spanish Agency for Medicines and Medical Devices.
- Shortage of medicines.
- Lack of scientific evidence on disease management.
- Lack of experience of most health professionals in the use of the drugs administered.
- Continuous updates of the pharmacotherapeutical management of the disease.
- High number of patients discharged home who required home dispensing of COVID drugs.
- High number of patients discharged home, to nursing homes, repurposed hotels, IFEMA and other hospitals, who needed to be delivered their medication on discharge.
- Staffing with personnel who were not trained in the use of prescription programs.
- High rotation of ER staff due to sick absences for COVID infection.

retomar e impulsar la humanización desde los diferentes estamentos. Una buena formación técnica y el desarrollo de habilidades como flexibilidad, capacidad de organización y coordinación, comunicación y gestión de las emociones serán imprescindibles para afrontar futuras e inimaginables situaciones.

- Use of drugs to treat COVID with multiple drug-drug interactions and safety problems.
- Need to restrict access of ER staff to the PS.
- Impossibility to return drugs from the ER COVID area to the PS.

## Strategies developed

The strategies adopted are detailed in Table 1. All strategies were adopted urgently without enough time for design and planning. Some pathways did not work and were modified. Time was spent on the development of protocols or assisted electronic prescription systems that were not used later. Decisions were made urgently without prior cross-consultation with other professionals, either because they were in quarantine or had not time to discuss the case. Work team and mutual trust were crucial to addressing the overwhelming increase in demand for care.

## Lessons learned. Future applicability in pharmacy services

As the pandemic subsides, and emergency care services struggle to return to normality, experiences, emotions and lessons learned will remain in our minds. This has been a transforming experience. It has served us to raise awareness on the importance of our work and illustrate our weaknesses. Some of the lessons learned are:

- Multidisciplinary cooperation and information sharing are the key to an effective quality work.

Having and providing structured information in critical situations such as the COVID-19 pandemic facilitate decision-making in unexpected, rapidly changing scenarios.

The severity of the crisis and growing number of people affected required the rapid provision of medicines, which led to a shortage of supplies. Free-flowing information sharing with Emergency Care and the Pharmacy Service management area were essential to anticipate the demand for critical medicines and advance purchase orders.

The scarce scientific evidence available on SARS-COV-2 is rapidly shared by the international scientific community. Each specialty has shared the knowledge gained and has tried to establish protocols in their field. The limited scientific evidence available forced clinicians to use drugs based on experts' opinions. Hospital pharmacists have put the focus on the safety of prescriptions and the administration of medications by incorporating protocols to inform on drug-to-drug interactions, dosage, administration and drug replacement in case of shortage.

The integration of hospital pharmacists in Emergency Care Services prior to the pandemic has been crucial for these services to have a contact person in pharmacy services to communicate their needs of supply, especially at the peak of the pandemic, when the demand for pharmacy services was overwhelming.

- Well-designed computer programs were essential to guaranteeing the safe use of medications. The higher the strain, the more important these programs are:

Integrated computer programs are required to process and provide the information available. A electronic medical history with medical prescription that includes assisted clinical decision-making and a nursing management record that allows to meet the growing medication demand, organize distribution pathways and provide information for the adequate use of drugs by physicians and nurses. These strategies guarantee a safe use of medication in ER patients.

**Table 1.** Strategies developed for drug dispensing

STRATEGIES TO GUARANTEE DRUG AVAILABILITY
– Individual drug requests were submitted to the Spanish Agency for Medicines and Medical Devices, with prior revision of the clinical history of the patient to provide the required data.
– Introduction in electronic prescription systems of information about authorised drug use conditions.
– Replacement drugs switching in shortage: chloroquine was replaced with hydroxychloroquine, lopinavir / ritonavir were replaced with darunavir cobicistat. It was agreed with physicians that the PS would dispense the drug available.
STRATEGIES TO GUARANTEE DRUG DISPENSING
– Adaptation of the stock of automatic dispensing systems; aerosols were replaced with pressurized metered-dose inhalers; stocks of morphics, infusion chambers, among others, were increased.
– Increase in the frequency of restocking of automatic dispensing systems. Restocking passed from once to twice daily.
– Setting up of medical supply units and restocking pathways in repurposed areas.
– Distribution of drugs unavailable in ER stocks with the collaboration of volunteers who regularly came to the PS. This strategy prevented the loss of drugs for ER patients transferred to repurposed areas.
– Extension of PS working areas to 24 hours to meet emergency drug orders and requests for drugs for patients discharged at night.
STRATEGIES TO GUARANTEE A SAFE USE OF DRUGS
– Cooperation for the development of multidisciplinary protocols for the management of COVID+ patients.
– Design and implementation of protocols in the electronic prescription program: COVID-associated pneumonia treated in hospital or at home.
– Introduction of computer-assisted prescription programs: drug-drug interactions, dose adjustment in the presence of renal insufficiency, maximum doses, etc.
– Training new staff in the use of the prescription program and in drug administration.
– Validation of the medication prescribed in the ER.
– Automatic system reconciliation with review of medication upon discharge.
STRATEGIES TO FACILITATE COMMUNICATION
– Daily rounds in the PS to share new procedures, reallocation of human resources according to hospital needs, and sharing of difficulties.
– Use of ICT in the PS.
– Use of ICT to communicate with protocol designers.

ER: Emergency Room; ICT: information and communications technology; PS: Pharmacy Service.

In this sense, it is the responsibility of pharmacists to facilitate the implementation of these tools. The more developed they are, the better will be future crises managed.

- There is an increasing need for humanization through telematic care: Face-to-face emergency pharmacy services have been interrupted or limited following hospital management' or pharmacy service's instructions.

This crisis has boosted the development of information and communication technologies applied to telepharmacy aimed at outpatients. A new model of emergency pharmacy care has emerged, although it should not replace face-to-face multidisciplinary sessions or direct contact with patients.

A remarkable feeling of dehumanization has been present during this pandemic. The plans developed by the different scientific societies applied to different health care areas have been suddenly disrupted. This situation should drive progress towards a humanization of healthcare services.

- Future applications:

We have lived other critical situations in the past, such as the 11-M terrorist attacks or the ebola outbreak in Africa, which have boosted the development of action plans for accidents with numerous victims in different areas, with the collaboration of primary care, prehospital emergency services (SUMMA, SAMUR),

hospitals, firefighters, or the Army, among others<sup>3,4</sup>. Action plans were already in place for different catastrophic scenarios, including pandemics. At national level, the involvement of emergency care pharmacists in committees for catastrophic situations in high-complexity hospitals is intended to guarantee the availability of medicines in critical units such as emergency care services. However, our capacity to anticipate new catastrophes is limited, and an unprecedented disaster could stretch our services beyond their capacity.

No health system was prepared to meet such a dramatic increase in demand as that caused by the COVID-19 pandemic. The applicability of this experience will depend on the nature of future disasters.

The main lesson learned is that we have to be prepared for unimaginable situations. An adequate technical training and the development of abilities such as flexibility, planning and coordination skills, and an assertive communication and management of emotions will be key to the successful management of critical situations in the future.

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