

## VKF HEALTHCARE GROUP PHARMACY TEAM COVID-19 PANDEMIC MANAGEMENT EXPERIENCES, Istanbul, Turkey

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Covid-19 pandemic which has been on the agenda of the throughout the world has also effected Turkey like other countries that have been fought with coronavirus.

As a Chief of Pharmacist, I would like to share Vehbi Koc Foundation Healthcare Group Pharmacy Team's experiences, precautions, challenges and initiatives during the Coronavirus pandemic.

VKF Healthcare Group has 4 different institutions which are American Hospital, Koc University Hospital, Med-American Outpatient Clinic, Bodrum American Hospital

This document covers the experiences of Koc University Hospital, Istanbul and American Hospital, Istanbul pharmacy divisions in the Covid-19 pandemic.

Celebrating 100th anniversary, American Hospital is a general acute care hospital with 232 beds and 36 intensive care beds. We provide healthcare services in all medical and surgical disciplines with the exception of inpatient psychiatry and transplantation which will be provided in the Koç University Hospital. In addition to 20,000 inpatients each year, we treat more than 250,000 patients yearly in the outpatient setting. More than 10,000 operations are performed each year covering the whole surgical spectrum.

Koç University Hospital became operational in September 2014 as a research and training hospital. As of 2019, the hospital has increased its capacity to 390 single inpatient rooms and 55 intensive care units. With 14 Operating Rooms, and 44 Chemotherapy Units, more than 4,000 operations have been performed. Throughout 2019, Koç University Hospital has delivered care to approximately 14,000 inpatients and 235,000 outpatients, more than 18,000 being international patients. The hospital includes; 390 Patient rooms, 55 ICU beds, 95 Observation beds, 44 Chemotherapy units, 169 Examination rooms, 14 Operating rooms, 4 Delivery rooms, 16 Bone marrow unit

### HUMAN RESOURCES MANAGEMENT

While the first official COVID-19 event had occurred in Turkey, the date 03.11.2020 was considered as a "Pandemic" as well as at the Vehbi Koc Foundation Healthcare Institutions. Domestic and international travel restrictions have been conducted, and hospital staff has undergone 14-day self-isolation after returning from abroad to prevent the Covid-19 disease outbreak.

According to the Turkish Ministry of Health circular, some measures have been taken to use existing staff more efficiently in the first week of the pandemic;

To decrease the number of outpatient clinics only scheduled outpatient appointments were allowed, unscheduled and urgent patients including Covid-19 patients admitted to hospital after triage process after determining the priority of patients' treatments based on the severity of their condition.

Patients diagnosed Covid-19 were admitted at the Emergency Department, other green zone clinical conditions redirected to the first-line healthcare providers.

Elective surgeries, solid organ transplantations, dental procedures, and invasive procedures were postponed unless there are no urgent conditions not only to use staff more efficiently but also to prevent the spread of the Coronavirus.

The follow-up period of patients who have chronic diseases was extended under the control of the doctor. Telemedicine and online consultation options have been used by patients.

Patients were admitted to the intensive care unit at the level appropriate for their condition when their intensive care indication disappeared they transferred to the inpatient service of the related branch or palliative unit as required by their condition to manage to effective use of intensive care unit sources

Patients coming under healthcare tourism restricted unless there are no urgent conditions

As a result of the decisions taken by the Turkish Ministry of Health and Vehbi Koc Foundation Healthcare Institutions Executive Committee. In the lights of the foreseeing decreased number of inpatient, outpatient, and operated patients, the number of staff had decreased according to their working shifts. To prevent possible coronavirus exposure and burnout syndrome, the number of employees during these days has been reduced by 40 % - 45 % compared to normal working shifts. One of the biggest challenges was the management of the staff under 65 years old but have chronic diseases. Despite the Turkish Ministry of Health count them administrative leave, this decree did not include the staff who works at the private healthcare institutions such as Vehbi Koc Foundation Healthcare Institutions. Although there is no illegal obstacle to their working conditions, 3 pharmacy staff (two disabled, one DM-1) were allowed to work at home in for their health safety.

Another difficulty was, employees failed to complete their legal working time because new COVID pandemic working shift. Since they did not willing it is solved by making arrangements to balance overtime hours and missing hours

During the fourth day of the COVID-19 pandemic, alternative transportation organizations provided by the management for hospital staff who had difficulties with the public transportation system while they were commuting from their home to work. Additionally, alternative accommodation opportunities had set for staff who were reluctant to stay with their home regarding coronavirus spread since they live with their children and senior family members.

Lockdown process had been set during the fifth day of the Covid-19 outbreak. To eliminate the negative impact of the curfew on transportation, which was decided to implement suddenly by the Turkish Ministry of Health, Pharmacy team leaders and employees who held personal vehicles were organized urgent transportation for their peers. Social distance rules were considered.

## **MEDICATION MANAGEMENT**

### **MMU.1 Organization and Leadership**

In the first week of the pandemic, 03/11/2020, whole medication management processes were carefully evaluated by the Pharmacy leadership to provide patient safety, medication safety, and staff safety concerns.

During this vital process, hot topics and risky processes were identified; the importance of effective communication and teamwork is emphasized. New working shifts for pharmacy staff, to ensure personal protective equipment, to provide convenient transportation and accommodation alternatives for the pharmacy team, and to prevent them from new coronavirus spread were the first concerns that processed by the pharmacy leaders. The employees of the drug manufacturers and pharmaceutical visitors were prohibited to enter the pharmacy to prevent virus spread.

### **MMU.2 Medication Selection and Procurement**

The first edition of the "Covid-19 Clinical Guideline" was released by the Turkish Ministry of Health on 03.11.2020. The medication used for the Covid-19 treatment were included in this guideline. According to coronavirus treatment algorithms, medications both COVID-19 specific and supportive treatments were taking place. Since increased demand and drug shortages were the biggest challenges related to medication selection and procurement process, the "Supply Chain Risk Evaluation Algorithm" was evaluated in this context. To be prepared a prolonged pandemic period, below medication immediately stocked.

- IV bags
- Covid-19 related bacterial infections
  - Quinolones
  - 3rd and 4th generation Cephalosporins
  - Piperacillin/Tazobactam
  - Vancomycin
  - Azithromycin
- Covid-19 related viral infections

- Oseltamivir
- Analgesics & Antipyretics
  - Paracetamol IV/PO
- Anesthesia Induction and Maintenance
  - Neuromuscular blocking agents
  - Benzodiazepines
  - Sedatives & Hypnotics
- Metered-dose inhalers, nebulizers
- Cardiac medications
  - IV Beta-blockers
  - Calcium channel blocker
  - Concentrated electrolytes
- Others
  - Blood and plasma derivatives
  - Immunotherapy drugs
  - Tocilizumab
  - Enteral/Parenteral nutrition products
  - Low molecular weight heparin

Although there was a problem in the supply of COVID specific drugs in the first week of the pandemic, these drugs were distributed for unpaid throughout the hospitals which are assigned as “Pandemic hospitals” by the Turkish Ministry of Health in the line with their Covid-19 algorithms.

Hydroxychloroquine sulfate and Lopinavir + Ritonavir had been administered to COVID diagnosed patients during the first 3 weeks of the pandemic. Favipiravir was provided for coronavirus contaminated patients by the Turkish Ministry of Health without fee like other Covid-19 related medications such as Hydroxychloroquine sulfate and Lopinavir + Ritonavir. However, there were mandatory conditions required by the Turkish Ministry of Health for the distribution of Favipiravir. Patient’s Epicrisis report which includes evaluation or summing up patients’ medical case history, patients’ current clinical circumstances which have been required updated info on the Turkish Ministry of Health database were the legal documents that caused the rug supply process to slow down.

To create ready to use epicrisis templates regarding including mandatory patient-related information, to involve pharmacist efforts into the process of checking the accuracy of patient records and epicrisis reports and multidisciplinary teams including chief medical officers, chief

of pharmacy and division of medical record were the factors that speed up this mandatory process.

On one hand, Covid-19 related medications were stocked, other medications which are not vital Covid-19 pandemics were purchased limitedly. Considering the slowdown of the consumption rate, both the inventory cost was tried to be reduced and the drug disposal was prevented due to the expiration date.

### **MMU.3 Medication Storage**

The medication storage process was another important medication management subprocess that required by Covid-19 specific health crisis. First of all pharmaceutical supplier's pharmacy visits were banned and drugs that purchased were started to be taken by the pharmacy technicians in the restricted area outside the hospital with the use of Covid-19 appropriated personal protective equipment. Delivered medications were unpackaged and disinfect before central pharmacy admission. Medications that were not appropriately unpackaged were stored in a separated area that had security cam, restricted entry, and under the suitable room temperature and humidity that were measured regularly. This area was cleaned regularly with recommended disinfectants like the main pharmacy by the infection control committee. Unlike many hospitals around the world, our pharmacy technicians were responsible ward stock refills and load transactions (on one hand one of our institutions have pyxis automated drug delivery system, other institutions don't have any medication automation systems on the other) like before Covid-19 pandemics. For this reason, all the carts and bags that provided drug transportation from the main pharmacy to the patient care areas were disinfected daily with recommended disinfectants by the infection control committee.

### **MMU.4 Medication Prescription and Prescription Review**

Medication prescriptions that were written to inpatient COVID diagnosed patients were review by pharmacists like they had been done before the Covid-19 pandemic period in accordance with the Joint Commission International Standards MMU-4 criteria. Up-to-date Covid-19 Guideline series released by the Turkish Ministry of Health was followed by pharmacists regarding obtaining current drug mechanisms, potential adverse events, and dosage information.

Covid-19 related physician prescription's template was established by pharmacists in order to ease their prescription process during the pandemic rush. These templates routed from the Turkish Ministry of Health Covid-19 Guidelines were updated as soon as new guidelines releases. Outpatient Covid-19 procedures designed as an inpatient medication management process.

## MMU.5 Medication Preparation & Labeling & Distribution

With the onset of the pandemic, isolated patient care services were established where only patients with Covid-19 diagnosis will be treated. In the same way operation theatres, coronary intensive care units, and general intensive care units were separated in itself in order to prevent coronavirus spread. This new facility organization was aimed to increase the number of inpatient Covid-19 specific beds allowed to treat more number of intubated Covid-19 diagnosed sufferers.

Among all these planning, floor medication stocks and drug diversities were reviewed by the pharmacy team. Automated medication systems and manual ward stocks tailored to combat new coronavirus pandemic.

While many organizations handed over the process of completing the service medication stocks to nursing services, we embraced our process.

Hydroxychloroquine, Favipiravir, Lopinavir / Ritonavir supplied by the Turkish Ministry of Health for COVID-19 treatment was dispensed from the main pharmacy department per patient instead of floor stock in order to prevent potential medication errors.

Due to the fact that an increased number of Covid-19 diagnosed inpatient, these specific medications except Favipravir were distributed from automated dispensing cabinets located at the patient wards. Specific warnings and reports were created for the purpose of preventing medication errors such as blind inventory, double witness, and so on. Since Favipiravir supply required specific patient-related compulsory documents requested by the Turkish Ministry of Health, it continued to distributed from the main pharmacy through the patient ward stocks.

The decree was taken by the Turkish Ministry of Health, medications for outpatients stayed at home isolation, distributed from the hospital pharmacy as well.

Covid-19 diagnosed patients were not allowed to bring their own medicines from home to prevent contamination risk, and all chronic medicines were supplied from the hospital pharmacy. During the pre-COVID period, all medications brought by the patient were reviewed by the pharmacist prior to administration.

Crushed & divided medications, concentrated electrolytes, heparin solutions, PCA solutions, port, and arterial wash solutions, parenteral drug doses of pediatric patients, and contemporaneous drugs continued to be prepared in the ready to administration team of our pharmacy. The preparation of solid oral dosages, which should be administered to intubated Covid-19 patients through a nasogastric tube or PEG, was prepared by the ready to administration team of our pharmacy.

The biggest challenge was lack of the reliable medication information sources. Before starting the Covid-19 medications preparation process, possible risks that could arise if crushed administration of these drugs were evaluated with a multidisciplinary team. There is no evidence-based data on the bioavailability of these enteric-coated tablets after being crushed and administered to these vulnerable patients.

Therefore some studies have been done by the pharmacist on the preparation of alternative formulations. According to domestic and international publications, 1% carboxymethyl cellulose was recommended as the carrier in an effort to solve this problem. However, due to some difficulties in the supply of this carrier, the simple syrup was considered as the same purpose. Crushing a drug that should not be crushed because it's enteric-coat, insufficient distribution in simple syrup, and extended preparation time was the other difficulties faced by the pharmacists.

In line with the feedback received from the pharmaceutical technology departments of the faculties of pharmacy, these drugs were dissolved in water and administered to the patient was accepted as the most appropriate method.

#### **MMU. 6 Medication Administration**

During the pandemic period, all kinds of specific information and warnings about the administration of these drugs, which we have experienced for the first time, were provided by pharmacists. Eight rights of medication administration rules were followed by nurses like before the Covid-19 routine.

Patient Consent Forms were filled before the administration of IL-6 inhibitor Tocilizumab. In addition, an medication information leaflet was created by the pharmacists and shared on the hospital intranet and with all healthcare professionals to provide general information about the administration of Tocilizumab.

Specific labels were created by pharmacists to prevent Outpatient COVID related medication administration errors.

#### **MMU.7 Medication Monitoring**

From the first week of the pandemic, daily visits with the pharmacist were organized to COVID-19 inpatient services to monitor adverse drug effects and treatment procedures. Adverse drug effects such as QT prolongation, especially with the use of azithromycin + hydroxychloroquine, elevation of the liver enzyme developed by Tocilizumab and Favipiravir administration were followed and reported by the pharmacists during the floor visits.,

## STAFF EDUCATION

In the COVID-19 pandemic, all employees of the pharmacy department were given training on proper handwashing and the use of hand sanitizers. The importance of handwashing and disinfectant usage continued to be controlled by team leaders with instant observations throughout the day.

Correct personal protective equipment use was explained and routinely checked for personnel who did not use personal protective equipment, except for mandatory cases.

All pharmacy staff continued to maintain their workflows with wearing glasses, surgical masks, gowns, and sterile disposable gowns. Additionally, it was made compulsory for employees to wear scrubs. Out of work clothes, coats, coats, etc. and the use of shoes in hospitals and pharmacies is prohibited.

## STAFF HEALTHCARE AND STRESS MANAGEMENT

Our goal in this process was to prevent our employees from reluctant to work. We tried to make them strong both physically and psychologically. They were supported by giving work off, applying isolation from the work environment. Additionally, they were supported instantly organizing the examination by the workplace physician when they feel physically and psychologically weak. Covid-19 detection Polimeraz Chain Reaction test was done to the staff who displayed Covid-19 symptoms.

During this process, online mindfulness-based breathing therapy sessions were organized to support the employees under intense stress. Great emphasis was placed on maintaining routines and feeling confident about the employee. National Pharmacists day, pharmacy technicians day, and biologist day were celebrated with meaningful gifts.

Of course, in this process, the social distance rule, personal protective measures were paid attention. We shared the idea that the pandemic process is temporary and we will return to normal.

Transparent information policy has been implemented against the negative impact of the onset of infected employees in pandemic services since the 3rd week of the pandemic. Information such as the number of infected employees, the possible source of contamination, the clinical condition of the patient was shared with the teamwork in the most recent form.

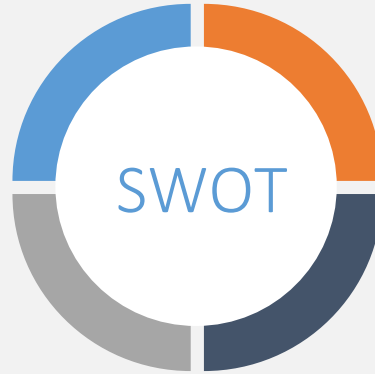
The importance of using personal protective measures, hand washing and hand sanitizer to prevent this situation was emphasized again and again.



## LEADERSHIP

### Strength

- Experienced Pharmacy Leadershi
- Motivated and experienced Pharmacy staff
- Making quick decisions in a crisis
- Quick adaptation and organization
- Established corporate culture
- Enough financial support
- Transparent communication



### Weakness

- Digital support
- Non-integrated systems
- Variable & unstable legal process

### Opportunities

- Floor visiting pharmacist
- Clinical experiences
- Pharmacist involved patient care
- Extended communication opportunities throughout the country and world peers.

### Threats

- Extended pandemic periods
- Drug shortages
- Staff burn-out
- Financial difficulties

## CONCLUSION

The process of combating the pandemic showed the importance of the pharmacist in patient care and teamwork.

The ability of the pharmacist to take a holistic view of the process has been particularly beneficial in monitoring and reporting adverse drug effects, ensuring drug, patient, and employee safety in the subgroups of the medication management process.

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