# Impact of the COVID-19 Pandemic on the Patterns of Palliative Care Service

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## Background

- The coronavirus disease 2019 (COVID-19) outbreak caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) marked the third introduction of a highly pathogenic and large-scale epidemic coronavirus into the human population in the twenty-first century.
- The World Health Organization declared the COVID-19 outbreak as a pandemic on 11 March 2020.
- Lockdowns were imposed in multiple countries affecting the patient flow in the hospitals.

## Methods

- This is a retrospective study conducted at King Fahad Medical City (KFMC), a tertiary care hospital in Riyadh, Saudi Arabia, which examined the differences in palliative care services during the initial four months of the COVID-19 pandemic compared to the respective four months in 2019 (March, April, May, June).

**Table 1.** Statistics of Inpatient Services in the pre-COVID-19 and COVID-19 era.

| Parameter | 2019 (Mar-Jun) N= 97 | 2020 (Mar-Jun) N= 119 | P value |
|---|---|---|---|
| **Age** | | | |
| Mean ± SD | 64 ± 16.438 | 59.28 ± 17.664 | 0.044 |
| Min-Max | 16-96 | 21-100 | |
| **Gender** | | | |
| Male | 38 (39.2%) | 50 (42%) | 0.672 |
| Female | 59 (60.8%) | 69 (58%) | |
| **Nationality** | | | |
| Saudi | 96 (99%) | 116 (97.5%) | 0.419 |
| Non-Saudi | 1 (1%) | 3 (2.5%) | |
| **Admission Type** | | | |
| PCU Admission | 25 (25.8%) | 39 (32.8%) | 0.443 |
| Transferred to PCU | 62 (63.9%) | 66 (55.5%) | |
| Carried over | 10 (10.3%) | 14 (11.8%) | |
| **Admitted From** | | | |
| ER | 23 (23.7%) | 38 (31.9%) | 0.142 |
| GI | 1 (1%) | 0 (0%) | |
| Hematology | 1 (1%) | 0 (0%) | |
| Maternity | 3 (3.1) | 2 (1.7%) | |
| Medical | 2 (2.1%) | 4 (3.4%) | |
| Medical Oncology | 54 (55.7%) | 60 (50.4%) | |
| Neuroscience | 6 (6.2%) | 4 (3.4%) | |
| Radiation | 2 (2.1%) | 3 (2.5%) | |
| Surgical | 5 (5.2%) | 8 (6.7%) | |
| **Code Status** | | | |
| DNR | 97 (100%) | 119 (100%) | |
| **Specialty** | | | |
| GI | 2 (2.1%) | 2 (1.7%) | 0.648 |
| Hematology | 1 (1%) | 6 (5%) | |
| Maternity | 2 (2.1%) | 1 (0.8%) | |
| Medical | 1 (1%) | 3 (2.5%) | |
| Neuroscience | 6 (6.2%) | 4 (3.4%) | |
| Oncology | 48 (49.5%) | 57 (47.9%) | |
| Palliative | 26 (26.8%) | 36 (30.3%) | |
| Radiation | 6 (6.2%) | 5 (4.2%) | |
| Surgical | 5 (5.2%) | 5 (4.2%) | |
| **Top Diagnosis** | | | |
| Cancer Pain | 26 (26.8%) | 24 (20.2%) | 0.590 (LR) |
| Delirium | 3 (3.1%) | 3 (2.5%) | |
| Dyspnea | 7 (7.2%) | 5 (4.2%) | |
| End of Life | 57 (58.8%) | 82 (68.9%) | |
| GI Symptoms | 4 (4.1%) | 5 (4.2%) | |
| New Case | 70 (72.2%) | 69 (58.0%) | 0.030 |
| Old Case | 27 (27.8%) | 50 (42.0%) | |
| **PPS**** | | | |
| Median (IQR) | 30 (20-40) | 40 (30-40) | 0.001 |
| **Length of Stay** | | | |
| Median (IQR) | 10 (4-19) | 8 (4-19) | 0.311 |
| **Discharge Type** | | | |
| Carried Over | 19 (19.6%) | 28 (23.5%) | 0.054 |
| Discharged Home | 24 (24.7%) | 43 (36.1%) | |
| Passed Away | 42 (43.3%) | 44 (37.0%) | |
| Transferred | 11 (11.3%) | 4 (3.4%) | |
| DAMA | 1 (1.0%) | 0 (0.0%) | |
| **Opioids** | | | |
| Yes | 97 (100%) | 119 (100%) | |
| No | 0 (0%) | 0 (0%) | |
| **Laxatives** | | | |
| Yes | 97 (100%) | 119 (100%) | |
| No | 0 (0%) | 0 (0%) | |
| **Imminent Death Protocol *** | | | |
| Yes | 17 (17.5%) | 6 (5.0%) | 0.003 |
| No | 80 (82.5%) | 113 (95.0%) | |

**Table 3.** Palliative Care Outpatient Statistics

| | | 2019 (March-June) N=249 | 2020 (March-June) N=200 | P value |
|---|---|---|---|---|
| **Age** | | 57.92 ± 17.59 | 58.03 ± 16.83 | 0.949 |
| **Sex** | **Male**<br>**Female** | 90 (36.1%)<br>159 (63.9%) | 72 (36%)<br>128 (64%) | 0.975 |
| **Attendance** | **Show**<br>**No-Show**<br>**Cancelled by hospital** | 150 (60.2%)<br>99 (39.8%)<br>0 (0%) | 127 (63.5%)<br>55 (27.5%)<br>18 (9%) | 0.000 |
| **Code Status** | **DNR**<br>**Full Code**<br>**N/A** | 78 (31.3%)<br>167 (67.1%)<br>4 (1.6 %) | 73 (36.5%)<br>127 (63.5%)<br>0 (0%) | 0.116 |
| **PPS** | | 59.61 ± 13.65 | 60.46 ±13.39 | 0.681 |

**Table 2.** Inpatient diagnoses in 2019 and 2020.

| Diagnosis | 2019 (Mar-Jun) N= 97 | 2020 (Mar-Jun) N= 119 |
|---|---|---|
| Acute Leukemia AML/ALL | 2 (2.1%) | 1 (0.8%) |
| Appendicular Cancer | 1 (1.0%) | 1 (0.8%) |
| Astrocytoma | 0 (0.0%) | 5 (4.2%) |
| B Cell & Burkitt Lymphoma | 0 (0.0%) | 2 (1.7%) |
| Bladder Cancer | 8 (8.2%) | 0 (0.0%) |
| Breast Cancer | 14 (14.4%) | 13 (10.9%) |
| Breast Cancer and Endometrial Cancer | 1 (1.0%) | 0 (0.0%) |
| Cervical Cancer | 0 (0.0%) | 2 (1.7%) |
| Cholangiocarcinoma | 1 (1.0%) | 4 (3.4%) |
| Colorectal Cancer | 10 (10.3%) | 11 (9.2%) |
| Endometrial Cancer | 4 (4.1%) | 2 (1.7%) |
| Esophageal Cancer | 2 (2.1%) | 7 (5.9%) |
| Ewing sarcoma | 1 (1.0%) | 0 (0.0%) |
| Fibrosarcoma | 0 (0.0%) | 1 (0.8%) |
| Gallbladder Cancer | 4 (4.1%) | 2 (1.7%) |
| Gastric Cancer | 2 (2.1%) | 3 (2.5%) |
| GBM | 10 (10.3%) | 3 (2.5%) |
| Glioma | 0 (0.0%) | 1 (0.8%) |
| Hepatocellular Cancer | 7 (7.2%) | 7 (5.9%) |
| Laryngeal Cancer | 1 (1.0%) | 0 (0.0%) |
| Epithelioid | 0 (0.0%) | 1 (0.8%) |
| Lung Cancer | 4 (4.1%) | 3 (2.5%) |
| Malignant Melanoma | 1 (1.0%) | 0 (0.0%) |
| Medulloblastoma | 2 (2.1%) | 4 (3.4%) |
| Meningioma | 0 (0.0%) | 2 (1.7%) |
| NSCLC Mets to brain | 0 (0.0%) | 1 (0.8%) |
| Multiple Myeloma | 0 (0.0%) | 6 (5.0%) |
| Myelofibrosis | 0 (0.0%) | 2 (1.7%) |
| Nasopharyngeal Cancer | 1 (1.0%) | 0 (0.0%) |
| Neuroendocrine Tumor | 1 (1.0%) | 0 (0.0%) |
| Neurofibromatosis | 0 (0.0%) | 1 (0.8%) |
| Oligodendroglioma | 0 (0.0%) | 1 (0.8%) |
| Osteosarcoma | 2 (2.1%) | 0 (0.0%) |
| Ovarian Cancer | 2 (2.1%) | 2 (1.7%) |
| Pancreatic Cancer | 6 (6.2%) | 5 (4.2%) |
| Parotid Cancer | 1 (1.0%) | 0 (0.0%) |
| Prostate Cancer | 0 (0.0%) | 3 (2.5%) |
| Pseudomyxoma Peritoni | 1 (1.0%) | 1 (0.8%) |
| Rectal Periampillary Cancer | 1 (1.0%) | 1 (0.8%) |
| Rectosigmoid Cancer | 1 (1.0%) | 2 (1.7%) |
| Rectum Cancer | 3 (3.1%) | 2 (1.7%) |

**Table 4.** Outpatient diagnoses in 2019 and 2020.

| Diagnosis | 2019 (March-June) N=249 | 2020 (March-June) N=200 |
|---|---|---|
| AML | 1 (0.4%) | 1 (0.5%) |
| Bladder Cancer | 7 (2.8%) | 2 (1%) |
| Breast Cancer | 49 (19.7%) | 35 (17.5%) |
| Colon Cancer | 15 (6%) | 14 (7%) |
| Cervical Cancer | 2 (0.8%) | 5 (2.5%) |
| Cholangiocarcinoma | 0 (0%) | 2 (1%) |
| Gall Bladder Cancer | 3 (1.2%) | 4 (2%) |
| Endometrial Cancer | 7 (2.8%) | 1 (0.5%) |
| Esophageal Cancer | 1 (0.4%) | 0 (0%) |
| Pancreatic Cancer | 8 (3.2%) | 6 (3.0%) |
| Ependymoma spine | 3 (1.2%) | 2 (1%) |
| Gastric Cancer | 5 (2%) | 5 (2.5%) |
| Glioblastoma | 11 (4.4%) | 0 (0%) |
| Hard palate adeno Cancer | 3 (1.2%) | 1 (0.5%) |
| Ovarian Cancer | 2 (0.8%) | 3 (1.5%) |
| Lung Cancer | 13 (5.2%) | 13 (6.5%) |
| Hepatocellular Cancer | 8 (3.2%) | 9 (4.5%) |
| Laryngeal Cancer | 1 (0.4%) | 0 (0%) |
| Meningioma | 8 (3.2%) | 4 (2%) |
| Hodgkins Lymphoma | 1 (0.4%) | 1 (0.5%) |
| Uterine Cancer | 2 (0.8%) | 5 (2.5%) |
| Thyroid Cancer | 13 (5.2%) | 7 (3.5%) |
| Medulloblastoma | 4 (1.6%) | 0 (0%) |
| Malignant Melanoma | 1 (0.4%) | 2 (1%) |
| Multiple Myeloma | 6 (2.4%) | 4 (2%) |
| Astrocytoma | 1 (0.4%) | 2 (1.0%) |
| DLBCL (Lymphoma) | 6 (2.4%) | 3 (1.5%) |
| Meningioma | 1 (0.4%) | 1 (0.5%) |
| Mesothelioma | 2 (0.8%) | 0 (0%) |
| Glioma | 7 (2.8%) | 6 (3.0%) |
| Rectosigmoid Cancer | 4 (1.6%) | 16 (8.0%) |
| Rectum Cancer | 20 (8.0%) | 4 (2.0%) |
| Nasopharyngeal Cancer | 1 (0.4%) | 6 (3%) |
| Prostate Cancer | 4 (1.6%) | 5 (2.5%) |
| Tonsillar Cancer | 0 (0%) | 1 (0.5%) |
| Sarcoma | 8 (3.2%) | 4 (2.0%) |
| SCC in the mouth | 2 (0.8%) | 3 (1.5%) |
| Schwanoma | 2 (0.8%) | 1 (0.5%) |
| Renal Cell Cancer | 0 (0%) | 3 (1.5%) |
| Tongue Cancer | 1 (0.4%) | 1 (0.5%) |

## Results

- A total of 319 patients were seen at the palliative care department from March to June 2020 during the COVID-19 pandemic (119 inpatient, 200 outpatient), compared to 346 patients seen during the corresponding months in 2019 (97 inpatient, 249 outpatient).
- Our main findings included more patients being discharged home, lesser transfers, shorter hospital length of stay, lesser imminent death protocols, and a higher PPS score during the COVID-19 pandemic.
- Although there were more cancelations by the hospital for the outpatient department, a virtual clinic was started, and 84 patients were effectively seen.
- Around 87% of patients were fully satisfied (5/5) with the services provided by the virtual clinic.
- There were no positive COVID-19 cases in our healthcare workers in the palliative care department due to the high standard precautions applied at KFMC.
- Family meetings as well as administrative and academic meetings have been efficiently held virtually and may possibly become the standard of practice.

## Actions Taken

- To reduce the hospital visits of the patients and reduce the crowd in the hospital to avoid unnecessary exposure, we changed the departmental protocol and practices.
- The teleconsultations increased. The medication was issued for longer durations and medication via courier services was offered. In the absence of fresh complaints, patients were discouraged to visit the hospital during lockdown just for the sake of getting medicine refills. Other than virtual clinics and family/ caregiver meetings over the phone, our general departmental practices also transformed.
- While a few activities were canceled, administrative meetings were held online over platforms like Zoom. We also held academic/training activities virtually, where the residents and fellows outside the hospital premises could participate easily.

## Conclusions

- In conclusion, palliative care services were successfully maintained during the COVID-19 pandemic at KFMC utilizing virtual clinics and implementing multiple infection control procedures in the hospital.
- Further collaborative studies need to be done, especially in our region, to be well prepared for further pandemics.

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