

Experiences of Shaukat Khanum Memorial Cancer Hospital and Research Centre Biobank during COVID-19 Pandemic

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Abstract

Pakistan has an approximate population of 228.9 million. In 2020, 178,388 new cancer cases were diagnosed in Pakistan. In 2019, we established the biobanking facility at Shaukat Khanum Memorial Cancer Hospital and Research Centre, Lahore, Pakistan. Shaukat Khanum Memorial Cancer Hospital and Research Centre is a tertiary care charitable, not-for-profit cancer hospital in Pakistan. In 2020-21, 22,745 new cancer patients were registered in the Shaukat Khanum Memorial Cancer Hospital and Research Centre for cancer treatment. The hospital treats around 75% of accepted cancer patients free of charge, regardless of race or nationality. In December 2019, a novel coronavirus SARS-Cov-2 (COVID-19) was identified in China. The World Health Organization acknowledged the COVID-19 outbreak as a pandemic. Pakistan was hit by the first wave of COVID-19 in March 2020. We have highlighted the challenges faced during the COVID-19 pandemic. We emphasized the significance of collaborations between low and middle-income countries' biobanks and international biobanks to achieve the global perspective of biobanking.

Keywords: Biobank- Shaukat Khanum Memorial Cancer Hospital and Research Centre- Pakistan

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Pakistan has an approximated population of 228.9 million, making it one of the most populated countries in the world (<https://www.worldometers.info/world-population/pakistan-population>). In 2020, 178,388 new cancer cases were diagnosed in Pakistan (Globocan, 2020). Shaukat Khanum Memorial Cancer Hospital and Research Centre (SKMCH and RC) is a tertiary care charitable, not-for-profit cancer hospital in Pakistan (Asghar and Loya, 2021). In 2020-21, 22,745 new cancer patients were registered in the SKMCH and RC for cancer treatment (<https://shaukatkhanum.org.pk/about-us/facts-and-statistics/patient-statistics/>). The hospital treats around 75% of accepted cancer patients free of charge, regardless of race or nationality (Yusuf, 2020).

In February 2019, we established the biobanking facility at SKMCH and RC (Asghar and Loya, 2021). Currently, the biobank contains 523 frozen samples (<https://shaukatkhanum.org.pk/health-care-professionals-researchers/research/biobank>).

These include breast 232 (44.35%), colorectal 129 (24.66%), head and neck 95 (18.16%), gastrointestinal 09 (1.72%), sarcoma 07 (1.33%), ovarian 17 (3.25%), pancreatic 12 (2.29%), renal 4 (0.76%) and lymphomas 18 (3.44%). Recently new sites (brain, thyroid, lung, bladder, endometrial, cervical and testicular malignancies) have been added and further expansion is still ongoing. SKMCH and RC biobank is a member of the low and middle-income countries (LMICs) Biobank and Cohort

Building Network (BCNet) (IARC-WHO) (<https://bcnet.iarc.fr/contact/members/>).

In December 2019, a novel coronavirus SARS-Cov-2 (COVID-19) was identified in China (Holshue et al., 2020). The World Health Organization acknowledged the COVID-19 outbreak as a pandemic in March 2020 (WHO, 2022a). The whole world including Pakistan experienced COVID-19 outbreaks (Yusuf, 2020; Bassetti et al., 2020). As of April 14, 2022, 500,186,525 cases have been reported worldwide, with 6,190,349 deaths (WHO, 2022a). In Pakistan 1,526,829 COVID-19, cases and 30,362 deaths have been confirmed, as of April 14, 2022 (WHO, 2022a).

During the COVID-19 pandemic, we faced a few challenges that include a reduced number of elective surgeries, the vulnerability of consenting staff and delays in supplies. Electronic consenting in future public health emergencies needs to be warranted to sustain the pace of biobank activity/research. The COVID-19 infected patient samples could not be stored for biobanking because the newly established facility lacked the infrastructure to handle infectious samples. Biobanks should acquire facilities to deal with highly pathogenic agents to support the development of vaccines and therapies in potential future pandemics.

The COVID-19 pandemic served as an important paradigm for biobanking in LMICs during infectious outbreaks. The whole world suffered economic crises

but the situation is worse in LMICs. The international biobanking communities can play a pivotal role by providing hands-on training to recently developed biobanks. There is a need to develop collaborations and promote capacity building among the biobanks of the Asian region. Furthermore, access to international biobanking platforms should be free of cost and participation costs in the events should be waived off for LMICs. A global perspective of biobanking is to promote clinical and translational research from diverse populations of patients. To achieve this goal, the established international biobanks, academia and research institutes should develop research collaboration rather than sample transfer with biobanks in LMICs.

Author Contribution Statement

All authors contributed equally to the manuscript.

Data availability statement

Data sharing not applicable to this article as no datasets were generated or analyzed during the current study.

Conflict of Interest

The authors declare no conflict of interest.

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