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Case Study: The Establishment and Operational Resilience of the COVID-19 Ward at Abbasi Shaheed Hospital (ASH)

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ABSTRACT

The impact of the coronavirus 2019 (Coronavirus disease 2019, hereafter Covid-19) pandemic in 2020 was a severe stress-test on the health-care infrastructures in the developing world thus revealing fundamental structural frailties in urban governance. The case study explores the development and sustainability of a Covid-19 ward at Abbasi Shaheed Hospital (ASH), the third- largest state-owned hospital in Karachi, Pakistan. Located within the overcrowded District Central, ASH serves as a life-or-death safety net of millions of poor residents in various districts like Nazimabad and Orangi, as they otherwise have no access to private health-care services. The institution was at risk of being crippled due to chronic underfunding, the dysfunction of laboratory services, and massive infrastructural negligence during the pandemic. The story of how ASH transformed itself into a resource-strained municipal institution to a frontline defence is fully described in this paper with the event climaxing in the opening of a 120-bed Infectious Diseases and Research Centre (IDRC). This turnaround operation was propelled by the strategic leadership of the Metropolitan Commissioner, federal allocation resources via the National Disaster Management Authority (NDMA), and philanthropic resources. A significant accomplishment was to create the first municipal molecular testing laboratory in the country, which broke the provincial monopoly for diagnostics and offered free laboratory services to the population. Critically, the case study demonstrates the complex stakeholder scenario and the political "Cold War" between the local (KMC) and provincial (Sindh) government which hindered funding and the release of salaries, posing a threat to the stability of the workforce. Through extensive SWOT and PESTEL analyses, the research project found that while the purchase of "hardware" (ventilators, oxygen) was manageable, the "software" of healthcare (human capital, consistent financing and governance) proved to be the most volatile. The results highlight the fact that resilient disaster management requires legal reforms to ensure municipal financial autonomy, pre-established emergency protocols and the protection of human resources.

Introduction

The intrusion of the novel coronavirus (denoted as the COVID-19 virus) in the early months of 2020 led to a global health public emergency, and thereby, exposed systemic deficiencies within the health care infrastructures of countries around the world. The result was an emergency to which, in resource constrained settings, local health systems were exposed as a sort of severe stress testing, which has not only exposed deep structural gaps but brought to the fore socioeconomic vulnerabilities. Karachi, a megacity in Pakistan, stood out as a hotspot for the spread of the virus, handicapped by extreme population density, few resources and a debilitated health service. In this delicate situation, then, Abbasi Shaheed Hospital (ASH) took on a huge role of defence. This case study looks at the setting up and locational capacity of the covid-19 ward in ASH, and how this municipally funded resource-constrained institution helped the city's most vulnerable population.

Abbasi Shaheed Hospital has a crucial and indispensable role in the health care spectrum of Karachi. Managed by Karachi Metropolitan Corporation (KMC), it is the third largest public hospital in Karachi city. Its strategic importance largely derives from the fact that it is in the densely-populated District Central, an area marked for its urban sprawl and serious socioeconomic problems. The hospital serves as the prime safety net for the residents of Nazimabad, Orangi and Liaquatabad, providing essential medical services to millions who cannot access care from private hospitals (The News International, 17 May 2020). The demographic makeup of this catchment area - which is mostly low- to middle-income households - made it particularly vulnerable to rapid coronavirus spread in the community. As a result, the operating capacity of ASH was not only an administrative issue but a life and death matter for a large part of Karachi's population.

Whatever the case, the hospital entered the pandemic period in a state of considerable vulnerability. The pre-pandemic status of ASH was characterized by constant neglect and chronic under funding. Compared with tertiary care facilities that were funded by provincial authorities, which generally have more stable developmental funding, ASH continued to struggle with chronic financial difficulties. Contemporary reports showed that labs were often non-functional, hampers the labs ability to conduct necessary diagnoses even before the extra burden brought on by the novel viral outbreak (Dawn, 19 July 2020). In addition, infrastructural stagnation prevailed and wards and equipment were not modernized, driven by grave fiscal constraints. Local discourse often characterized the physical and technical capacity of the hospital as 'step motherly', suggesting that the capacity was in decline at exactly the point when it is needed most.

Despite these incapacitating limitations, however, ASH's administrative directive was significant. As a municipally run facility, ASH was well positioned to relieve patient burden on provincial tertiary hospitals, which quickly reached stretch capacity (Dawn, 6 July 2020). The health infrastructure of the city was dependent on the municipal hospitals to manage a huge volume of illnesses so that specialized hospitals like Jinnah Postgraduate Medical Centre and Civil Hospital do not collapse. This mandate set up a paradox in that ASH was expected to bear a burden similar to provincial institutions in much more highly restricted resources than were managed under provincial authorities. The gap between the expectation and the capability becomes the main conflict in the pandemic response in the hospital.

By June 2020, Karachi had emerged as the epicentre of the pandemic in Sindh and had numbers of cases that far exceeded the rest of the province and a large percentage of the national total. The increase in infection was rapidly beyond the capacity of the existing health infrastructure. The situation worsened when reports indicated that there were insufficient critical care beds at nine of the city's major hospitals, both public and private (The Express Tribune, 27 November 2020). The drop in private sector capacity, where costs were already prohibitive for most individuals, had forced the public safety nets to receive a large influx of patients in a short period of time. Families used to

private clinics were denied service, making ASH the only possible option for people living in District Central. The setting up of the ward for the treatment of the Covid-19 infection at Abbasi Shaheed Hospital was an exercise in operational resilience for want of operational ethics. Rapid mobilization of personnel, reallocation of deteriorated infrastructure and acquisition of essential commodities in the context of a market characterized by shortages were an imperative. Transforming a facility with non-functional laboratories into a facility that could handle a highly infectious respiratory virus required major changes in both leadership and logistic strategy. This case study analyzes the change in depth, focusing on particular decisions from administration, community engagement efforts and resource management practices that allowed ASH to set up its Covid-19 ward. Analysis of such a transformation gives us critical insights on how urban healthcare systems can adapt to survive future public health emergencies, being able to ensure that safety nets continue to be robust and accessible to those that need them most.

Problem Identification: The Healthcare Collapse of 2020

The first wave of Covid-19 had completely overwhelmed Karachi's hospital system by the time June 2020 arrived. The problems identified are being described below.

Critical Bed Shortage: Official reports showed that six key government hospitals were to receive 500 oxygen-equipped beds to cope with the growing patient load (The Express Tribune, 12 June 2020). This intervention was designed to take care of the acute surge in admissions.

Exclusion of the Poor: Private healthcare facilities became financially inaccessible, whereas public hospitals like Civil and Jinnah were running at full capacity, resulting in an urgent need for a publicly funded institution for the sake of serving the population residing in District Central (The News International, 27th November, 2020).

Early Operational Failures: In April 2020, the emergency department of ASH was forced to be temporarily suspend operations following the positive test results for the presence of the virus (SARs CoV-2) among the Chief Medical Officer and other staff members, revealing the failure of the biosecurity protocols that governed the operation of ASH (Dawn, 27 April 2020).

Strategic Choice: Creation of Infectious Disease Research Center (IDRC)

A dedicated ward for coronavirus patients, a dedicated ward for Covid-19 was opened in Karachi in June 2020 under a declaration by the mayor of the city, Wasim Akhtar, and the leadership of the Karachi Municipal Corporation (KMC) was inaugurated in June 2020 in accordance with a declaration by the Mayor of Karachi, Wasim Akhtar, and the leadership of Karachi Municipal Corporation (KMC) (The News International, 17 June 2020). This announcement was precipitated by emerging pandemic conditions.

Vision: The initiative, therefore, was not envisioned simply as a temporary ward but as an "Infectious Diseases and Research Centre", which could treat over one hundred and twenty patients simultaneously (Dawn, 25 November 2020).

Leadership: The Mayor and myself in my role as Metropolitan Commissioner were the main driving forces behind the project. We orchestrated the necessary logistical restructuring to redistribute hospital wards for the management of infectious diseases (Business Recorder, 20 July 2020).

Infrastructure Mobilization & Capacity building

The section below establishes the infrastructural mobilization and capacity building efforts pursued to change the face of the facility, through a synergistic mix of donations and federal funds.

Capacity Specifics: The facility included a total of 120 beds, which were divided amongst Isolation Wards, High Dependency Units (HDUs), and Intensive Care Units (ICUs) (ARY News, 23 November 2020).

Equipment for Critical Care: To effectively manage patients with severe pathology, the institution procured eighteen mechanical ventilators and twenty-five intensive care unit beds (Dawn, 24 July

2021).

Capabilities for Diagnosis: A state-of-the-art molecular laboratory was set up to conduct sixty- five polymerase chain reaction (PCR) tests a day. These diagnostic services were provided free of cost to the public and were unavailable in any other government hospital in the area at the time (The Express Tribune, 26 June 2020).

Federal Government Support: In this regard, the National Disaster Management Authority (NDMA) provided one hundred Hospitalized Dependent Units (HDUs), along with the supply of oxygen to support the wards (The News International, 2020).

Framework of Operation & Workflow

To regulate the patient flow and patient safety, the hospital introduced strict operating standards (SOPs).

Phased Opening: The ward was formally opened in July 2020; multidisciplinary personnel, including professors, physicians and paramedics, were deployed to cover the shifts 24/7 (The Nation, 21 July 2020).

Service Model: ASH projected its operation as a "gift for Karachiites" by providing free treatment to patients who, due to limited financial capacity, could not afford private medical care (Dawn, 19 July 2020).

Biosecurity: Apart from the wave of panic that swept across the country during April, strict standard operating procedures were implemented to protect staff; as a result, the outpatient departments were reopened with proper precautionary measures (The News International, 17 June 2020).

Politics and Administration Challenges (The "Cold War")

The dispute that emerged between the Local Government (KMC) and the Provincial Government of Sindh was a major hurdle in the functioning of the local community. The following sections outline some of the political and administrative challenges that have arisen.

Funding Bottlenecks: Mayor kept complaining that the Provincial Government of Sindh did not make financial cooperation as "Sindh government did not take him on board" (Business Recorder, 20")).

Salary Crisis: Due to the delay in salaries, frontline medical personnel faced significant wait times for reimbursement which led to public protests. In an interview with The Nation (21 stars August 2020), the Mayor remarked, "It is the Sindh government which issues salaries, we just forward it."

Disputes Over Jurisdiction: Although healthcare has been the responsibility of the province, the Abbasi Shaheed Hospital (ASH) was still kept under the supervision of KMC and therefore there was a gap in coordination and the hospital often functions with "limited resources" (Dawn, 19 July 2020).

Workforce Management & Response to Crisis

In a way parallel to the infrastructural deficit, the challenge posed by human resources was to take precedence.

Absenteeism and Discipline: Keeping in view the Fourth Wave (July 2021) Karachi's Administrator, Mr. Laeeq Ahmed, voices discontent over ineffectiveness of the personnel and imposes sanctions on the relevant officials for their absence in the Covid Ward (Dawn, 24 July, 2021).

Incentivization: In an attempt to combat low morale and absenteeism, the government announced that staff members assigned to the ward would be awarded a "COVID allowance" and an additional one-month wage (The Express Tribune, 27 July, 2021).

Essential Services: The administration issued a warning that physicians who refused to treat persons suffering from Covid were violating their oath and faced possible termination (Gulf News, 24 July 2021).

Combatting Disinformation & Panic of the Public

Due to widespread misrepresentations, the hospital faced a reputational crisis in May 2020.

The Incident: A video circulated on social media that claimed to show ASH treating patients with HIV and heart conditions at the same time as patients suffering from the coronavirus in the same ward (AFP Fact Check, 7 May 2020).

The Fact Check: Both the hospital management and independent fact checkers concluded that the source of the footage appears to be from Shatabdi Hospital of Mumbai in India, not Karachi (AFP Fact Check, 7 May 2020).

Impact: This forced the Medical Superintendent to publicly deny the allegations in an effort to protect public confidence in the newly built facility (AFP Fact Check, 7 May 2020).

Resilience Across Pandemic Waves

Resilience was evidenced by the fact the operational condition of the ward changed as the viral waves passed through.

Wave 1 (June-July 2020): The first wave, occurring between June and July of 2020, included the establishment and inauguration of the 120-bed facility (Dawn, July 21, 2020).

Wave 2 (November 2020): Amidst a resurgence, the administrator Karachi, Iftikhar Shallwani declared the ward to be "functional" again, thus instructing to maintain the optimal capacity of 120 beds (Dawn, November 25, 2020).

Wave 4 (July 2021): Seeing a new surge in the Delta variant, the occupancy of the ward was reached which led to the setting up of a second ward. This expansion was needed because other municipal hospitals couldn't accommodate the patients (Geo News, 29 July 2021).

Multiple Analysis Carried for the COVID-19 Ward

SWOT Analysis of the COVID-19 Ward

STRENGTHS:

Strategic Location: According to The News International (17 June, 2020), the strategic location of the establishment was supposed to serve the low-income community living in the Central District of Karachi.

Cost Leadership: The facility provided testing and treatment to patients free of charge as a part of a cost-leadership program (The Express Tribune, 17 June, 2020).

Infrastructure: ARY News (23 November, 2020) states that the infrastructure includes the third-largest hospital, with 120 specific beds and 18 ventilators.

WEAKNESSES:

Financial Dependency: The institution demonstrates a financial dependency on provincial government salary releases, which is a weakness (The Nation, 21 July, 2020).

Staff Morale: According to Dunya News (18 July, 2020), the morale of the staff was negatively influenced by strikes due to frequent salary delays and an increased risk of illness.

Maintenance: In the morning of 19 July 2020, a repair was carried out on the equipment that had failed prior to the pandemic.

OPPORTUNITIES:

Federal Cooperation: According to Dawn (19 July, 2020), the modern equipment (oxygen beds/vents) were ordered in collaboration with the National Disaster Management Agency (NDMA).

Research Potential: A prospective research opportunity noted by Business Recorder (20 July, 2020) is the creation of a “Research Centre” in future infectious diseases.

Philanthropy: According to the Pakistan Observer (25 July, 2021), philanthropic donations helped fill the gaps in the government budget.

THREATS:

Political Strife: An ongoing political confrontation between KMC and the Sindh government

threatens further financing of the organization (The Express Tribune, 28 July, 2021).

Disinformation: A video purportedly shot in Mumbai was a piece of fake news that created a sense of disinformation that undermined the trust of the population (AFP Fact Check, 7 May, 2020).

Overload: During an overload, the quick spikes of the Delta variant were more than the facility could handle with 120 beds (The Express Tribune, 28 July, 2021).

PESTEL Analysis

Political: At the political level, the 18th Amendment devolved health to the provinces, which resulted in a tug-of-war between the Provincial Government, which was led by the PPP, and the Local Government (KMC), which was led by the MQM, which had an impact on the funding for ASH (Dawn, 19 July, 2020).

Economic: Due to the increased poverty rates in Karachi, the general population was unable to pay private medical care, which made the available free treatments provided by ASH an economic necessity (Dawn, 6 July, 2020).

Social: The public's failure to comply with standard operating procedures and "festivities" during Eid resulted to large surges, which ultimately overwhelmed the ward (The Express Tribune, 27 July, 2021).

Technological: ASH established a molecular lab that is capable of performing 65 PCR tests on a daily basis (The News International, 21 July, 2020). This was a technological development that was prompted by the pandemic, which compelled the digitization of diagnostics.

Environmental: For environmental reasons, the hospital was had to develop processes for fumigation and sealing in order to manage the biohazard environment following the infection of staff members (Geo News, April 26, 2020).

Legal: The administration employed disciplinary rules in order to terminate employees who refused to perform their tasks for Covid, citing professional negligence as the reason (Dawn, 24 July-2021).

Stakeholder Analysis: The Creation of the COVID-19 Ward

The successful establishment and operation of the COVID-19 ward at Abbasi Shaheed Hospital was a complex project that involved the communication of different stakeholders, such as federal governments and local philanthropists. This study outlines roles, interests and dynamics of the five main stakeholders involved in this critical community health initiative.

1. **Strategic Leadership (Metropolitan Commissioner Principal Stakeholder):**
   The Metropolitan Commissioner spearheaded the initiative and offered much-needed strategic vision and leadership to guide the crisis. The job was not just administration but high-level supervision that saw to it that the facility was not only built but also properly functioning. The Business Recorder (20 July 2020) claims that the presence directly at the inauguration was a sign of strong political and administrative determination. The core value was operational success; that the ward should effectively serve the community and provide an excellent public service, thus alleviating the healthcare burden on the inhabitants of Karachi at the height of the pandemic. The role required serving as the major coordinating body connecting resource providers to the operational staff.
2. **Resource Facilitator (National Disaster Management Authority):**
   The NDMA was serving as a resource provider of critical nature as it provided the substantial infrastructure that was required to transform a traditional ward into an infectious disease unit. The Express Tribune (12 June 2020) highlighted that the NDMA provided 100 High Dependency Unit (HDU) beds and ventilators. Such an investment was essential, without this federal effort the ability to treat severely ill patients would not have existed at all. The stakeholder interest of the NDMA was in line with the national disaster mitigation goals, which promptly enriched the capacity of healthcare to avoid systemic collapse.
3. **Financial Authority (Government of Sindh Primary Stakeholder):**

Fiscal control was exercised by the Government of Sindh, which acted as the primary financier of continual expenditures, in particular, personnel expenses. The relationship was predominantly characterized by friction in administrative structures. On 21 July 2020, the newspaper Nation mentioned that the provincial government controlled pay disbursement and budget approvals. Moreover, there was also a large-scale conflict, where the bureaucratic delays for processing the payments often put the project in jeopardy. Centralized financial approvals hampered their facilitative role, and in some cases, resulted in bottlenecks that caused the necessary agility needed to respond to the emergencies.

4. The Operational Core (Frontline Healthcare Professionals Principal Stakeholders):

The operational core of the stakeholder matrix was represented by frontline workers. Their role involved the direct treatment of high-risk patients. This was the most challenged group. According to the Express Tribune (27 July 2021), they faced serious health hazards related to exposure to COVID-19, and simultaneously experienced pay delays. Their main concern was to get monetary rewards and hazard pay so as to compensate the high personal risk taken. The conflict of the financial stakeholder (Sindh Government) had a direct influence on this group, shaking morale and stability of personnel.

5. The Safety Net (Philanthropists and Non-Governmental Organizations Principal Stakeholder):

The philanthropic sector played a vital role as a backup system and supplemented the shortcomings in the public sector. Governmental funding was inadequate or the bureaucracy hindered procurement, governmental NGOs came in to offer the much-needed help in time. These stakeholders provided ambulances and additional ventilators, which helped to fill the operational shortages (Pakistan Observer, 25 July 2021). They were only motivated by the humanitarian aspect of it to make sure that the care of the patients was not disrupted by the administrative latitudes. They provided the flexibility and speed that is not always found in government activities. This is a delicate balance of power and reliance that this stakeholder ecosystem functioned on. The strategic vision was set by the Metropolitan Commissioner, infrastructure was provided by the NDMA, financial resources were controlled by the Sindh Government (which sometimes caused tension), the frontline workers were faced with tangible risks and continuity in situations when other systems failed was ensured by the philanthropists. These dynamics are essential to comprehend the complexities of setting up the COVID-19 ward.

Financial Analysis & Resource Allocation

Funding Sources: the newspaper, Dawn reported on 19 July 2020 that the ward was built using the KMC limited resources and federal funding by the National Disaster Management Authority (NDMA) with the help of philanthropy.

Budget Allocation: Abbasi Shaheed Hospital received a budget allocation through the Sindh Coronavirus Emergency Fund, which approved a sum of Rs. 466 million of ventilators in the province (Business Recorder, 30 May 2020).

Cost Management: All patient payments were absorbed by Abbasi Shaheed Hospital thus creating a significant and repetitive financial cost on the KMC budget (Dawn, 6 July 2020). This was with the fact that critical care centers like the intensive care unit (ICUs) and ventilators are very expensive.

Key Outcomes and Lessons Learned

The COVID-19 ward at Abbasi Shaheed Hospital (ASH) is a relevant case study in the context of crisis management in the public sector. Furthermore, the quick setting up of local governmental institutions reflects their speediness in mobilization; at the same time, this reflects systemic deficiency inherent in the larger institutional structure. Subsequent discourse looks into the narrative dimensions of performance metrics, producing very much enduring insights that are relevant and pertinent to the operational lifecycle of the initiatives.

Performance Evaluation

Capacity and Service: Watershed Moment in the History of Local Governance

The logistical transformation of the ASH facility is a landmark achievement, not only in terms of its restoration, but because it has greatly expanded the capacity of the ward to 120 beds. This development provided a massive boost to Karachi's healthcare system during a time of severe manpower shortages and functioned as a much-needed safety net for the residents of overcrowded middle- and-poor-income areas who are often unable to afford private medical healthcare. Perhaps the best among all indicators for assessing the effectiveness and efficacy of this facility was the fact that the lab achieved the feat of being the sole local government run hospital in Pakistan that offered autonomous testing for Covid-19. This feat essentially broke the monopoly on testing enjoyed until then by provincial and federal laboratories and showed the ability of the municipal organization to overcome complex technical challenges. Ultimately, implementation of in-house testing has helped to reduce the turnaround time of the diagnosis itself and has reduced patient referrals, thereby proving the point that municipal hospitals-often thought to be secondary institutions-can successfully handle sophisticated clinical demands given the right leadership and technology.

Resilience and Limitations

Notwithstanding extensive physical infrastructure, the ward was to suffer from a continual operational volatility. It displayed resilience in delivering continuous care during successive waves of the pandemic in contrast to other institutions which withdrew care services; none the less, this stability was precarious. During outbreaks the facility came close to collapse, thus exposing an important disparity between installed capacity, represented by hardware, and operational capacity, which covers staffing and financial resources. Although the National Disaster Management Authority invested the hospital with equipment, it faced "soft" issues, including a shortage of intensivists, and ongoing demands for oxygen. At the end of the day, the case it demonstrates simple as well that physical assets are not sufficient for good service delivery; they need to be complemented by a certain level of robustness in supply chains and a competent workforce to operate them efficiently.

Core Lessons Learned

Infrastructure Not Equivalent to Operation: The most important understanding to be gained from the ASH experience is that the physical infrastructure of healthcare, the built configurations of wards and ventilators, are the least complex component of the system. These engineering jobs can be dealt with relative ease. In contrast, governance, coordination and operational sustainability pose the biggest challenges. The problems faced at ASH had more to do with decision-making hierarchies, supply chain management and stakeholder conflict resolution, and less to do with bricks and mortar. Consequently, in public-health initiatives, the success is not determined by the construction of a building, but by the constant, careful management of the systems within the building.

Decentralization Requires Resources: Although the Local Government (ASH administration) showed considerable speed in the establishment of the ward, its long-term operations were hampered by an inadequate degree of financial autonomy. If fiscal authority remains centralized at the provincial level, a supposedly "decentralized" mandate to resolve health challenges will not succeed. Administrative powers alone are not enough, local authorities must also have the financial capacity to make rapid procurements without waiting for approval from higher tiers. Only under such conditions can they effectively fulfill their role as first responders.

Human Capital is Foundational: Delays in payroll and the lack of hazard pay caused significant loss of morale, resulting in loss of staff in the key times. This highlights a very important lesson: human capital is the foundation of healthcare delivery. Financial incentives, physical protection and timely remuneration are not "bonuses" in high-risk situations like a pandemic ward, they are

necessary operational requirements. Without a secure workforce, even a technologically advanced, 120 bed facility becomes inoperable.

Pre-Established Protocols are Essential: The ASH experience identified the ineffectiveness of ad-hoc management structures. Initially, a great deal of operational friction prevailed as a result of "learning by doing." Reliance on spontaneous responses, however, is unsustainable for long term operations regardless of where improvisation is required as part of emergent crisis. Ambiguity in procurement's standard operating procedures or undefined chains of command led to detriment to the facility. Therefore, the creation of pre-limited protocols which can be quickly implemented should be a key part of future planning for disaster management, thereby reducing the 'friction of war' that impedes quick response in the early stages of a crisis.

Recommendations for Future Pandemic Preparedness

The establishment and functionalization of the COVID-19 ward at Abbasi Shaheed Hospital (ASH) represented a rigorous evaluation of the Karachi municipal health infrastructure. Crisis management was performed on the spot by way of exemplary leadership and frontline staff action; however, exposed systemic sources of friction, which highlighted the necessity of systemic restructuring. The following broad guidelines are recommended in order to change the mode of reactive crisis management into long-term resilience. All these guidelines seek to balance the local government flexibility with the necessary resource permanency necessary to ensure long-term functionality.

Financial and Governance Reforms

Law Municipal Health Autonomy

The main weakness identified in the ASH operation was the lack of clarity in law requirements and budgetary control. The imperative of preparing for the prospective eventualities calls for substantive legal reform and in particular, through amendments in the Sindh Local Government Act. Such amendments should clearly define and impart health responsibilities to local governments during periods of declared emergency. The jurisdictional overlap of the provincial and municipal authorities creates the regulatory shadow that is effectively an impetus for administrative inefficiency. Institutionalizing municipal oversight of select tertiary care providers in times of crisis, and bringing such oversight more in line with statutory modes of funding, would reduce bureaucratic deadlocks associated with budget approvals that hindered the response to the Covid-19 outbreak. Consequently, autonomy must be administrative as well as financial.

Establish a Karachi Health Emergency Fund

Karachi Health Emergency Fund should be formed to avoid the lengthy procurement cycles inherent in the normal governmental processes. The fund must be envisaged as a ring-faced financial buffer, which is immune to ancillary fiscal shortfalls and regular budget cuts. It needs accelerated acquisition powers thus absconding it of the more time-consuming tendering processes that are the norm in peacetime upon review of the post crisis. They should have the provincial government, the local municipal governments (including the Metropolitan Commissioner) and independent providers of audits in the private sector, to ensure integrity and political support. This kind of arrangement ensures that when the next crisis arises, there is ready capital that can be used to procure the necessary supplies such as oxygen, personal protective gear, and medications, instead of weeks following the demand spike.

Create Pre-Arranged Co-ordination Procedures

The initial stage of the epidemic was characterized by the so-called “fog of war”, which was worsened by a chaotic command structure. It is urgently needed that a Unified Health Command of Karachi be officially established in the view of further disasters. This model should be signed into law and be designated with clear emergency thresholds, for example if the rate of infection exceeds a pre-set threshold, the command system will automatically come into place, overriding normal

operational processes. Such mechanisms must define the authority for resource allocation (e.g. beds and ventilators) to avoid monopolistic control of individual hospitals.

Operational and Human Resource Initiatives

Institutionalize the IDRC

The Infectious Disease Research Centre (IDRC) at ASH should not be seen as a mere reactionary body but should be speedily established as a permanent centre for the study of infectious diseases. This change presupposes the establishment of a special, periodic budgetary allocation that will be independent of overall hospital funds. A dedicated centre will guarantee year-round maintenance of vital infrastructure including negative-pressure rooms and specialized labs and maintain a base workforce of skilled specialists. As a result, the facility transforms into a wartime bunker to a centre of excellence with the capacity to manage regular infectious disease outbreaks (e.g., dengue and typhoid) and still being able to scale up in times of pandemics.

Establish a Human Resource Reserve Corps

Human agents are crucial to life-saving capacity, and the basic vulnerability of the workforce is a major vulnerability. In response, the city needs to create a Human Resource Reserve Corps that consists of pre-vetted and trained retired physicians, medical students, and volunteers within the private sector. The terms of their interaction such as hazard compensation, insurance coverage, and legal protection should be negotiated in advance. These pre-contracts eliminate the protracted negotiating of salaries in cases of emergency, hence a surge workforce can be formed within 48 hours without administrative time wastage.

Install a Step-by-Step Starting Control

There should be no binarism of crisis response. It is necessary to have a Phased Activation System based on a traffic-light approach: *Green: Surveillance*, *Amber: Partial Surge*, *Red: Full Emergency*. This system should be connected to objective triggers. A shift back to Green to Amber should automatically release 20 per cent of the Emergency Fund and mobilize the first tier of the Reserve Corps. This automation eliminates uncertainty in political decision-making, which allows the healthcare system to grow proactively as opposed to being reactive.

Systems and Technological Enhancements

Digital Dashboard Implementation

The use of manual reporting in the pandemic created data lag and resource discrepancies. The digital dashboard should be centralized and real time and this is crucial to future preparedness. This system should combine information of all municipal hospitals (public and private) to provide real-time view of the bed occupancy, ventilator presence and oxygen stock. This prevents the tragedy of patients dying as they seek available beds since ambulances can be dispatched promptly to available facilities.

Learning-Applications Strengthening

The uniqueness of ASH lies in its association with the Karachi Medical and Dental College (KMDC). This cooperation must be institutionalized in academic-operational alliances. The response should include medical colleges as the research and training aspects, which will provide resident physicians and real-time epidemiological investigations. Linking the academic world (theory/research) to the operations in hospitals (practice) will ensure that clinical guidelines are informed by evidence and are kept up to date.

Prioritization of Transparent Communication

Finally, trust is an essential resource of public-health. The city must maintain the publicly facing dashboards, which reflect the operational situation of hospitals clearly (e.g., Full, Accepting Patients). Honest reporting of infection rates, shortages of resources, and positive stories of success gives the community trust, which is necessary in making people comply with the directives of the public-health, e.g. lockdowns or vaccination.

Conclusion

The COVID-19 ward at Abbasi Shaheed Hospital is a reminder of how the institution was able to persevere and respond effectively to the challenges it was facing. Although the hospital was able to treat thousands of patients and provide necessary free services throughout the toughest months of the epidemic, its activities remained under constant threat as the political rift between the provincial and the local officials continued to prevail. To support its new technological competencies, the hospital needs budgetary independence to avoid the bottlenecks caused by bureaucratic processes and a permanent infectious disease endowment. The COVID-19 ward represents the model of crisis management with significant resource limitations and political intricacy. It shows Pakistan's ability to mobilize political will and material resources in a very short period of time. More importantly, it highlights systemic weaknesses across the public health system, such as weak governance, unsustainable funding sources and an out-of-control human resource crisis. The experience shows that infrastructure alone is not enough, but must be effectively governed through sound funding mechanisms and be supported by a secure motivation among a workforce. The tertiary care hospital, Abbasi Shaheed Hospital (ASH), highlights the need to reform the structures to come up with strong, coordinated, and equitable health governance systems to deal with future crisis.

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