



Ministry of National Health
Services Regulations & Coordination
GOVERNMENT OF PAKISTAN



World Health
Organization



Pakistan Institute
Of Medical Sciences



CODE FOR
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World Health Organization (Pakistan Office)

Healthcare Associated Infections (HCAI) Application



*Supported by FMTI PIMS
Powered by Code for Pakistan*

A Concept Paper

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1. Introduction and Overview

Medical treatments sometimes involve the use of complex tools or procedures that can end up unintentionally infecting patients in the process. These infections are known as healthcare associated infections (HCAIs), which are contracted from healthcare facilities when patients are admitted for treatment of their illnesses. Out of every 17 patients infected with HCAs, one is fatal. This is a higher number than those who lose their lives to HIV/AIDS, cancer, or even road traffic accidents.

WHO has developed a set of guidelines i.e. Infection Prevention and Control (IPC), which is a practical approach intended to protect patients and healthcare workers from the harm caused by avoidable infections such as HCAs. With WHO's help, these IPC's have been implemented by public sector hospitals in Pakistan. Hospitals and similar healthcare facilities pose a higher risk of spreading communicable diseases. But this spread can be significantly reduced if effective measures are taken regarding the source of infection, a patient's susceptibility towards it, and means of transmission.

IPC practices consist of basic hygiene measures, as well as medical interventions like prescribing antibiotics/antivirals and timely vaccinations. But IPC practices prove insufficient without monitoring and control. Surveillance of HCAs is a control measure taken to avoid infection spread, and needs to be implemented alongside an effective IPC to improve the quality of healthcare.

2. Value of Application

- **Decrease in HCAs over the years in developing countries:** HCAs affect hundreds of millions of patients around the world, and they are all potential causes of death.
- **Crucial to limiting transmission of infections:** Pathogens are increasingly becoming more resistant to conventional treatment methods: Timely detection will aid healthcare professionals to devise prevention methods.

3. The HCAI Application

The HCAI Application will serve as a mechanism to monitor and report HCAs across hospitals in Pakistan. The surveillance application will allow healthcare professionals to identify, track and

report patients with infections to their respective organizations and other concerned parties. It will enable them to monitor the HCAs caused while under care in the healthcare facility.

Healthcare practitioners (doctors, nurses, hospital administration) can download the HCAI Application on their mobile devices. It has the capacity to store data related to large numbers of patients. Coupled with a dashboard, the app enables doctors and nurses to insert patient data and generate trends based upon a selected set of variables. Patients have unique ID numbers through which the information can be stored and viewed. The app has a selection of pre-loaded infections that healthcare professionals merely need to select when collecting patient data. This makes the process highly efficient. Reminders from the app allow healthcare practitioners to double check whether a patient is infected or not.

4. Future Roadmap

The HCAI Application is the first of its kind in Pakistan. Sponsored by WHO (Pakistan Office), it is being piloted at FMTI PIMS. PIMS treats over 80,000 patients every year out of which approximately 29,000 patients undergo [surgery](#). Currently the app covers the monitoring and surveillance of Surgical Site Infections (SSIs) which are the [most prevalent type of HCAI](#) in the country. It is designed as a scalable solution which can be expanded horizontally to every other healthcare facility across Pakistan. It can also be expanded vertically by increasing the number of attributes, i.e. additional KPIs in the existing surveys and new surveys for monitoring various HCAs. As an Open Source solution, this application is sustainable and replicable with variable attributes. The next phase of the project is to add additional features as needed and enhance the algorithm.

Furthermore, CfP and WHO aim to publish a joint case study on the HCAI Application, and together formalize a monitoring and evaluation process to record impact based upon pre defined KPIs. CfP's communications team along with WHO & PIMS shall design and lead a social media campaign to bring the case and impact studies to the public at large.

The HCAI Application is WHO's (Pakistan Office) gift to the medical community internationally. FMTI PIMS and CfP are proud contributors to this value creation.



5. About Us

World Health Organization (Pakistan Office): The World Health Organization (WHO) is the directing authority for public health within the United Nations system; it has been providing a wide range of technical support to the Government of Pakistan in strengthening health services, addressing public health issues and supporting and promoting research for health.

Ministry of National Health Services Regulations and Coordination: The Ministry of National Health Services, Regulations and Coordination is committed to helping the people of Pakistan to maintain and improve their health; making Pakistan a healthy nation of the region.

Federal Medical Training Institutes Pakistan Institute of Medical Science (FMTI PIMS): [FMTI PIMS](#) improves health in Pakistan through leadership, discovery and innovation in patient care, education and research. The institution is a premier research-intensive medical tertiary care teaching institute that educates medical students, paramedics, and postdoctoral fellows in accordance with international professional standards, and prepares clinicians to practice patient-centered medicine of the highest quality.

Code for Pakistan (CfP): [CfP](#) is a technology-focused non-profit, building a non-partisan civic innovation ecosystem to improve the quality of life across Pakistan. As part of the global Code for All network, CfP shares its belief that digital technology can both improve governance and open new channels for citizens to more meaningfully engage in the public sphere.



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