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Designing a comprehensive framework of Immunization Information System for routine immunisations services during the pandemic.

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DESIGNING A COMPREHENSIVE FRAMEWORK OF IMMUNISATION INFORMATION SYSTEM FOR ROUTINE IMMUNISATIONS SERVICES IN THE INDIAN HOSPITALS

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ABSTRACT

TITLE: Designing a comprehensive framework of immunisation information system for routine immunisations services in the Indian Hospitals.

PURPOSE: To limit the vaccination coverage gaps and the risks in infants prone to VPDs due to delayed discharge of immunization services, especially during the pandemic or emergency crisis in the Indian hospitals.

BACKGROUND: It is very crucial to discern the impact of 'Covid-19 lockdown on the routine vaccination services for individuals, especially infants and children'. The reduction of specific vaccines administered in the facilities will help us to better understand the intensity and the effect of 'Covid-19 on the routine immunization services.' Hence an Observational study was conducted in a tertiary hospital named Manipal Hospital in the Urban town of Bangalore city. The observational study was followed by designing a comprehensive framework of Immunization Information System (IIS) for the hospital to help the children prone to Vaccine Preventable Diseases (VPDs) and close the vaccination coverage gaps. The thesis mainly focuses on routinely tracking the non-immunized children, reducing vaccination coverage gaps and establish an effective and efficient vaccine delivery system in the hospital.

METHODS: The project is divided into two phases: Phase 1 followed by Phase 2.

Phase 1 is based on analysing and interpreting the observed immunization data and drawing conclusion on the impact of lockdown on the infant immunization delivery in the hospital. The total of six month's vaccination coverage data of 'pre-lockdown period' and 'post-lockdown period' is observed. Pre and post lockdown period's, vaccination data of infants from birth to six months of age and the vaccine rate of DTwP is observed and analysed. Finally, the vaccination coverage rate between the two periods is computed using the Vaccination Coverage Formula and the result is interpreted and concluded.

Phase 2 focuses on designing the framework for implementing IIS in the Indian hospitals. The technical aspect of the system is discussed in detail and the importance of the proposed system is emphasized.

RESULTS: The vaccination coverage rate for DTwP vaccine from October,2020 to March,2021 is found to be 70.54% whereas from April,2021 to September 2021 is found to be 59.63%. Hence, a 10% drop in the DTwP vaccine, between the two intervals is observed. The total vaccination coverage rate of infants between 0 to 6 months from October,2020 to March,2021 is found to be 88.14% whereas from April,2021 to September 2021 is found to be 65.90%. It is understood that there is significantly higher drop rate in the vaccination coverage during the post-lockdown period in comparison with the pre-lockdown period.

CONCLUSION: The result shows that the effect of COVID-19 lockdown and the Vaccination Coverage Rate is significantly higher. The hospital failed to provide 100% vaccination coverage to the infants even for at least six months during the lockdown period. The vaccination coverage dropped below 70% which is a high-risk situation for the infants to be prone to VPDs. Hence, an IIS is designed which can be used in all the Indian hospitals to conduct the vaccination services routinely and smoothly and achieve 100% vaccination coverage even during the outbreak of pandemic or other emergency crisis. IIS can be implemented in the hospitals for regularly tracking the non-immunized children and maintaining the vaccine records in the most feasible manner.