ABSTRACT

Introduction

The health system has achieved an enormous improvement globally with modern technology and digital health. Clinical Decision Support System is one of the examples that has improved the total quality of health service and the safety of the patients providing timely suggestions, alerts, identifying disease patterns, diagnostic support based on patient's clinical condition.

Sri Lanka has already taken steps to develop digital health in the government sector healthcare institutions. There are many successful implementations of digital health in the government sector including electronic medical record systems.

This study aimed to design a clinical decision support system framework to detect infectious disease patients who need intensive care in Sri Lankan government hospitals. This requirement was raised with the Covid-19 crisis faced during the 2021 in Sri Lanka. With the third wave of Covid-19 hospital capacities and intensive care facilities were limited for the patients.

Method

This was a qualitative study based on Strausian Grounded Theory. Semi-structured interview guide prepared after reviewing literature was used to collect data from experts in clinical, health informatics and information technology fields. One to one onsite and online interviews were conducted to collect data. Data were analyzed with open coding, axial coding and selective coding pathway to develop the clinical decision support framework.

Result

The interview guide helped to identify the data elements of clinical decision support system related to data input, knowledge base management, output, interoperability, security, monitoring and evaluation were identified. Based on the above factors clinical decision support system framework was designed. Further, architecture design and a dashboard for the framework were designed.

Conclusion

The framework for Clinical Decision Support System that detects infectious disease patients who need intensive care in a government hospital was developed based on Straussian grounded theory. This framework helps to develop future clinical decision support systems and guides to make them interoperable with other information management systems and digital health architecture of Sri Lanka.