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The implementation of a synchronous telemedicine platform linking off-site pediatric intensivists and on-site fellows in a pediatric intensive care unit: A feasibility study

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Objective: The aim of this study was to assess the feasibility of implementing a synchronous telemedicine platform in a pediatric intensive care unit (STEP-PICU).

Method: A prospective mixed study was conducted. Two sources of data were mobilised: a survey with structured questionnaires and direct non-intrusive observation. The study site was the PICU of a university hospital. Users' perceptions of six aspects of the STEP-PICU were studied: telemedicine system quality, data quality, quality of technical support, use of the new system, overall satisfaction and system benefits.

Results: During the 6-month experimentation period, use of the telemedicine platform was rather limited and fell short of the promoter's expectations. The mean scores for the six user perception dimensions were low, with no differences between the two groups of users. A Mann-Whitney test showed that being an off-site pediatric intensivist or on-site fellow did not make a statistically significant difference in responses on system quality ($p = .518$), data quality ($p = 1.00$), quality of technical support ($p = 1.00$), system use ($p = .556$), overall satisfaction ($p = .482$), or benefits ($p = .365$). The low use of the STEP-PICU was attributed to three root causes: human factors, the platform's functionalities, and technical problems.

Discussion: The synchronous telemedicine service for PICU was feasible but would need good pre-implementation preparation to be truly helpful. Its usefulness during the night shift and holiday on-call periods was scored as low by the off-site pediatric intensivists and the on-site fellows. It would appear that such a service could be more beneficial for communications with other remote healthcare facilities, where there is a greater need for the expertise of a pediatric critical care intensivist.