Developing and testing an in-home tele-knee rehabilitation system for patient after knee surgery
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Background
Muscloskeletal pain, such as osteoarthritis of the knee (KOAs), is the most prevalent medical condition and the second largest contributor to "global disability" [1]. The total number of operations with artificial knees is expected to increase by almost 700% by 2030 [2], which underlines the need for optimal treatment of KOA. Moreover, human resource management will be one of the most challenging issues, due to achieving higher quality medical services and considerable decline in population growth. A proper tele-knee rehabilitation program would be an effective approach to reducing healthcare expenses, improving quality of healthcare services and achieving superior human resource management[3], [4].

State of the art
The audio/video communication were widely utilized in previous studies as a tele-physical rehabilitation tool and video conference between patients and healthcare professional are deemed as an optimized alternative for regular training for remote area [5].

Aim
The aim of this study is to identify needs for in-home telerehabilitation and develop, test and implement a system for patient after knee surgery. It has been observed, the system should enable patient and healthcare professional to communicate easily and help the healthcare professional to track the patient’s health recovery. Consequently the study is divided into the three sub-studies.

Studies Design
Study 1
"Technology Comparison"
Study 2
"User Driven Innovation"
Study 3
"RCT study of Telerehabilitation Program"