implement TQM. Although the QCC can substantially enhance the quality of health care and hospital management, it has been criticized by hospital managers for having technical problems.

**Methods:** The purpose of this study was to explore the problems encountered by a hospital when it adopts the QCC method of quality management. We provided suggestions on improving the operation of the QCC by using the Theory of Constraints (TOC) method.

**Results:** To implement a successful QCC activities, we obtained the following 3 findings: (a) Obtain support from top-level decision makers, register the QCC activities in the annual agenda and obtain sufficient funding from the hospital; (b) Establish a steering committee to manage the QCC activities and train a specialist to be in charge of the QCC; (c) Conduct in-house training courses to allow participants in the QCC to acquire the latest knowledge and techniques required by the QCC.

**Conclusion:** In addition to these 3 findings, we have the following 2 suggestions: (a) Develop a mechanism to assess the effectiveness of the QCC and to associate the participants’ performance with an annual review system; and (b) Invite external auditors to review the QCC process and ensure that the facilitators maintain the smooth operation of the QCC activities.

**Keywords:** Theory of Constraints; quality control circle; health care quality; health care quality improvement campaign

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**HEALTHCARE UTILIZATION AND ASSOCIATED FACTORS IN PAHANG, MALAYSIA**

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**Introduction:** The prevalence of non-communicable diseases have shown a steep increase. In the rural areas the healthcare system are often plagued with issues of accessibility and the lack of facilities and manpower. The aim of this study is to determine associated factors on healthcare utilization among population in rural area.

**Methods:** This is a cross-sectional survey done among rural population in of Pahang though multistage sampling. 5 districts in Pahang were chosen randomly. Household were selected through proportional sampling. Interviewer administered survey face to face to access11 determinants; i.e., gender, age, ethnicity, household income, educational level, smoking status, use of traditional and complementary medicine, own any transportation, any clinic within 5 km of the house, any hospital within 10 km of the house, chronic diseases (diabetes mellitus, hypertension, hypercholesterolemia, heart disease or stroke). Data was analyzed using SPSS. Multivariate logistic regression was used to investigate association between healthcare utilization and its associated factors adjusted for confounders. Significant level was set as p-value <0.05.

**Results:** Of the 3872 respondents, 818 (22.7%) respondents utilized healthcare facilities in the past two weeks. Healthcare utilization were associated factors female gender (OR 1.206; 95% CI, 1.031-1.410), age above 60 years (OR 3.341; 95% CI, 2.658-4.199), having at least one chronic disease (OR 1.536; 95% CI, 1.239-1.905); having more than one chronic diseases (OR=3.245; 95%CI, 2.598-4.055) and without own transportation (OR=1.950, 95%CI, 1.294-2.939). After adjusting for age, sex and ethnicity, presence of one chronic disease (aOR1.612; 95%CI, 1.286-2.022), more than one chronic
diseases (aOR2.810; 95%CI, 2.168-3.642) and more than 60 years (aOR 2.640; 95%CI, 1.641-4.246) remained statistically significant in increased odds of utilizing healthcare facilities.

**Conclusion:** The presence one or more than one of chronic diseases and age above 60 were associated with healthcare utilization in the rural area.

**Keywords:** Healthcare utilization, rural, associated factors

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TELE-PRIMARY CARE IN MALAYSIA: AN EVOLUTION

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**Introduction:** Since 2007, many primary care clinics in Malaysia have been running on tele-primary care system provided by BRINFO. In this study, we managed to explore the organisational, economical, medical and sociological aspects of tele-primary care system. This research explored the advantages and disadvantages besides providing constructive recommendations to improve this system.

**Methods:** Observational study was done. Multiple interviews were carried out to obtain insight about tele-primary care.

**Results:** Tele-primary care covers 3 aspects which are disease surveillance, outbreak management and technical support services. With the increasing importance of evidence based medicine, collection and analysis of patients' data can be done at ease. Management of disease can be catered to local population. This system also allows electronic medical records sharing and joint management between primary healthcare facilities. Medical errors can be reduced too using computerized system. Patients benefit from this system by reduced waiting time, detailed medical record and receiving the best medical care provided. Besides, tele-primary care improves access to specialist care for patients in remote area. It also enables rapid notification of communicable diseases and further outbreak management. Technical support services such as radiology, pharmacy, laboratory and rehabilitation services also work in line to provide optimal medical care.

Disadvantages recognized are learning curve to adapt to system, costly, reduced doctor patient interaction and patients' confidentiality issues. Recommendations to improve this project are for Ministry of Health to create their own system than hiring a private vendor and linking medical records with secondary and tertiary centres. We should also consider tele-health and monitoring linking patients care from their home.

**Conclusion:** Advantages of tele-primary care outweigh the disadvantages and should be implemented in all primary care centres to provide better care. However, this system requires much improvement and upgrading to ensure the efficacy of the system.

**Keywords:** tele-primary care