



**Service Priorities and Programmes**  
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**Impact of Remote Monitoring in Management of Patients with Implantable Cardiac Devices - Demystifying the Myths**

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**Introduction**

Current healthcare environment in Hong Kong emphasizes improvement in patient outcomes together with more efficient care. Remote monitoring (RM) have been developed as an efficient telemedicine solution to ever increasing numbers of patients being implanted with increasingly complex cardiac implantable electrical devices (CIEDs). It has been associated with improved efficiencies in CIEDs outpatient clinic workflow. Benefits of RM may reach beyond efficiencies by enabling early intervention to prevent patient morbidity and avoid hospitalizations. There are however concerns of excessive additional workload and burden of information data with adoption of RM.

**Objectives**

To analyse the actual remote monitoring transmission and define workload

**Methodology**

A total 153 patients were enrolled into our pilot project of RM in Grantham Hospital. A novel clinical work-flow was established for RM in our center. The numbers of RM transmissions were collected and analyzed. These were categorized into 2 groups: 1. scheduled transmissions defined as RM transmission pre-arranged before in-clinic follow-up and 2. Non-scheduled transmissions defined as RM transmission as a result of pre-set alerts for early notification of physicians/ nursing specialists (for example, occurrences of arrhythmia, heart failure exacerbations, lead or device malfunctions). Active interventions are considered indicated after consultation with cardiologist in charge and reviewing the transmissions.

**Result**

Of the 153 patients enrolled, there were 92 (60%) men and the mean age was 59 $\hat{A}$  $\pm$ 14 years. Devices implanted included: CRTD [83 (54%)], CRTP (9[6%]), ICD [32[21%]], and PM [29 (19%)]. There were a total of 4205 transmissions during this

period and the distribution of number of scheduled and non-scheduled transmissions is shown in Figure 1. Out of these transmissions, 1820 (43%) were scheduled transmissions prior or substituting in-clinic visits. Non-scheduled transmissions accounted for 57% of transmissions, and only 185 (4.4%) required active interventions.

Conclusions:

RM using CIEDs provides an alternative means of follow-up when compared to traditional regular in-person-based evaluation in clinic. Furthermore, RM can identify patients at risk and allowed earlier interventions through alerts pre-set by their physicians. With well-organized and efficient work-flow, the myths that RM will cause "extra-burden" of workload actually accounted for a very small proportion of transmissions. In reality, more time and effort were utilized to attend patients requiring appropriate care.