

S1 – In-depth Cost-effectiveness Study of the Multidisciplinary Risk Factor Assessment and Management Programme (RAMP) of the Hospital Authority

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Introduction and Project Objectives: The Risk Assessment and Management Programme for subjects with Diabetes Mellitus (RAMP-DM) is designed to enhance management of DM in the primary care setting through comprehensive risk assessment and management by multidisciplinary teams. The programme serves to detect early complications, offer holistic care and deliver target-based levels of care for people with DM. This study aimed to estimate the cost-effectiveness of RAMP-DM over 5-year's observation and lifetime from the health service provider's and societal perspectives.

Methods: We used the bottom-up approach to estimated programme costs, which included the set-up costs, ongoing intervention costs, and the central administrative costs. The subject out-of-pocket and time costs in attending RAMP-DM interventions were collected from a time-and-motion study. We conducted a 5-year cohort study to estimate the effectiveness and costs of RAMP-DM. We collected data on the health preference (utility) of DM patients, direct medical costs, and mortality of DM patients with specific DM-related complications. All these results were applied to the lifespan using a discrete event simulation model to evaluate the cost-effectiveness of RAMP-DM.

Results: The average programme cost per subject in the first 12 months was HK\$458. The average patient costs of attending RAMP-DM interventions was HK\$246 and the average accompanying person cost was HK\$42 per subject.

Over 5-years of follow-up, compared to subjects under the usual primary care (without RAMP-DM), subjects enrolled in RAMP-DM had relative risks of 0.478, 0.641 and 0.591 for developing AMI, stroke and ESRD, respectively. As a result, after modelling the lifetime span, RAMP-DM subjects gained 0.615 QALYs more than those in usual care. On top of this each RAMP-DM subject cost HK\$18,314 and HK\$ 15,854 less on average from the provider's and societal perspective.

Probabilistic sensitivity analysis found that RAMP-DM had 75.6% chance of being cost-saving compared to usual care under the assumptions and estimates used in the model. The probability of RAMP-DM being cost-effective compared to usual care would be over 95%, when the willingness-to-pay threshold is HK\$20,000 or higher.

Conclusions: RAMP-DM was found to be cost-saving from both health provider's and societal perspectives. This means that the cost of the RAMP-DM programme as well as the subject's own costs of private healthcare utilization and non-medical costs associated with using RAMP-DM such as transport, own and carer time were offset in the longer term by the savings in public medical resources required due to reduction in complications.

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