

Lifetime Cost-effectiveness of the Risk Assessment and Management Programme for Hypertension (RAMP-HT)

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Background

Risk Assessment and Management Programme – Hypertension (RAMP-HT)

- Launched by the Hospital Authority in 2011
- Protocol-driven, risk-stratified and multidisciplinary HT management programme to improve the quality of care for patients with HT.

Effectiveness of RAMP-HT from previous study

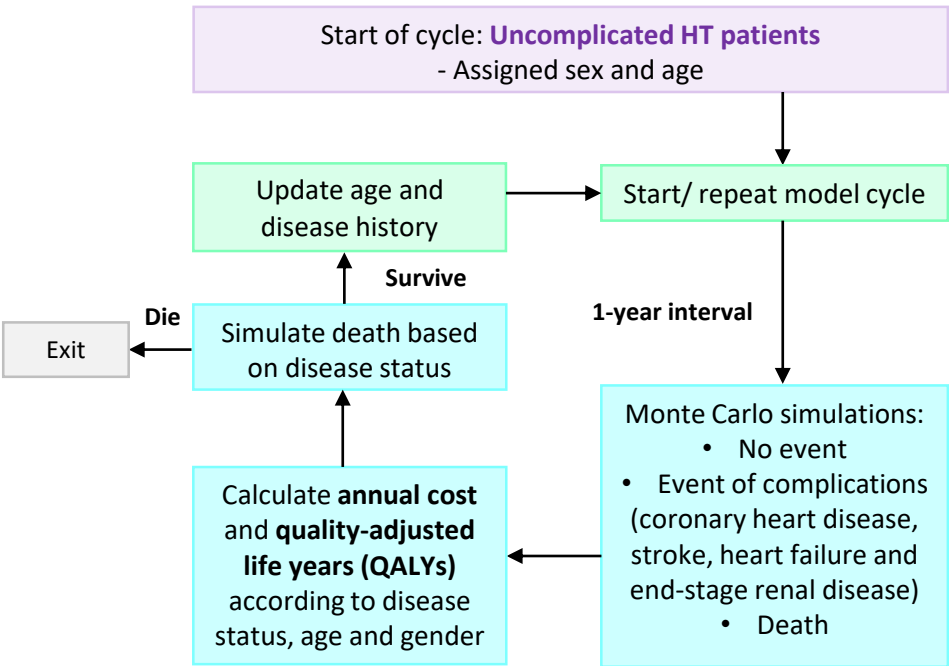
- Reduced the relative risk of cardiovascular diseases and all-cause mortality in primary care settings by 42% and 47%, respectively

Study Aim: To evaluate the **cost-effectiveness** of RAMP-HT over a lifetime.

Methods

A. Markov Model

Simulated progression from no complication to the development of related complications (coronary heart disease, stroke, heart failure and end-stage renal disease), death or until after 60 years



B. Transitional probability

Complications	Estimated by 90,656 propensity-score matched RAMP-HT participants and usual care-only patients over 10 years of follow-up.
Mortality	Modelled from 252,416 HT patients by Gompertz model or logistic regression model (depend on disease status in each cycle)
Medical cost	Modelled from 180,659 HT patients by generalized linear model with gamma family and log link function
Health utility	Modelled from 873 HT patients by administration of SF-12v2 health survey

C. Discount rate

Cost and effectiveness parameters were discounted at a **3.5% annual rate**.

Result

Table 1. Cost-effectiveness of RAMP-HT against usual care

	Cost (HK\$)		QALY	
	Mean	95% CI	Mean	95% CI
RAMP-HT	403,653	(400,624,406,682)	13.72	(13.67,13.77)
Usual care	433,467	(429,976,436,958)	13.21	(13.15,13.26)

- Each RAMP-HT participant gained **0.51 QALYs** and saved **HK\$29,814** over lifetime
- RAMP-HT associated with reduced direct medical cost and increased QALYs compared with usual care only

Figure 1. Cost-effectiveness plane with 1,000 iterations

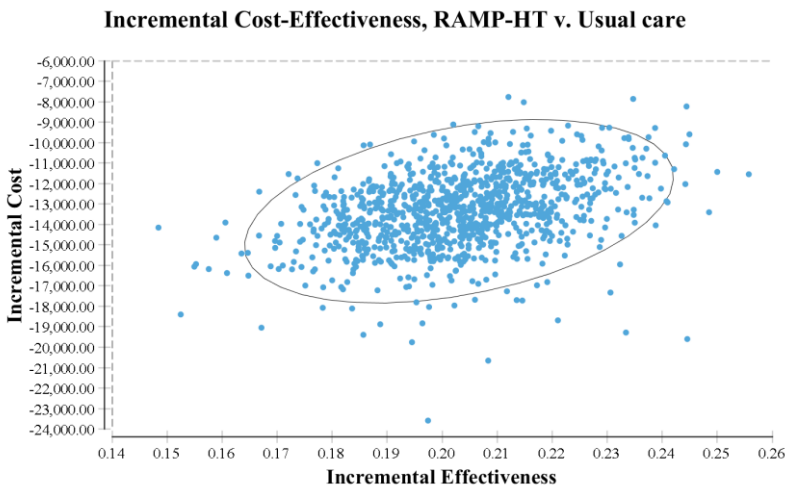
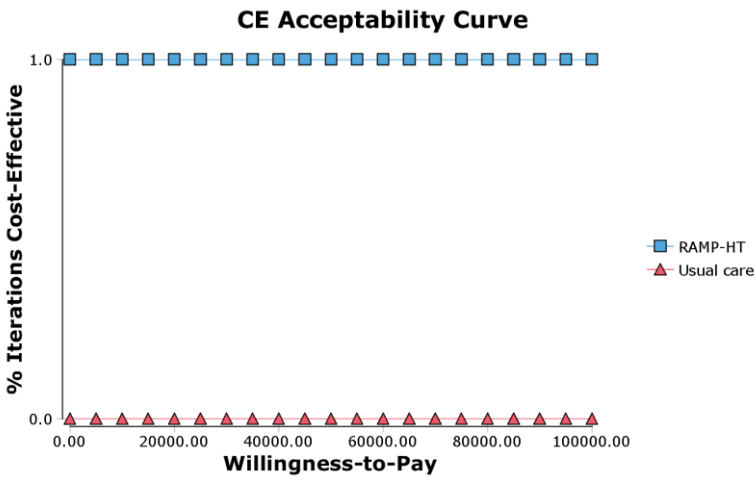


Figure 2. Cost-effectiveness acceptability curve with 1,000 iterations



- RAMP-HT was **100% cost-effective** over usual care regardless of the willingness-to-pay threshold

Conclusion

- RAMP-HT supplementing usual care was **cost-saving** in managing patients with HT over a lifetime.
- The results support the integration of RAMP-HT in primary care for patients with HT.

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