EE121: Cardiovascular Disease Risk-Reducing Strategies in Qatari Diabetes Patients: A Cost-Effectiveness Study

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Background

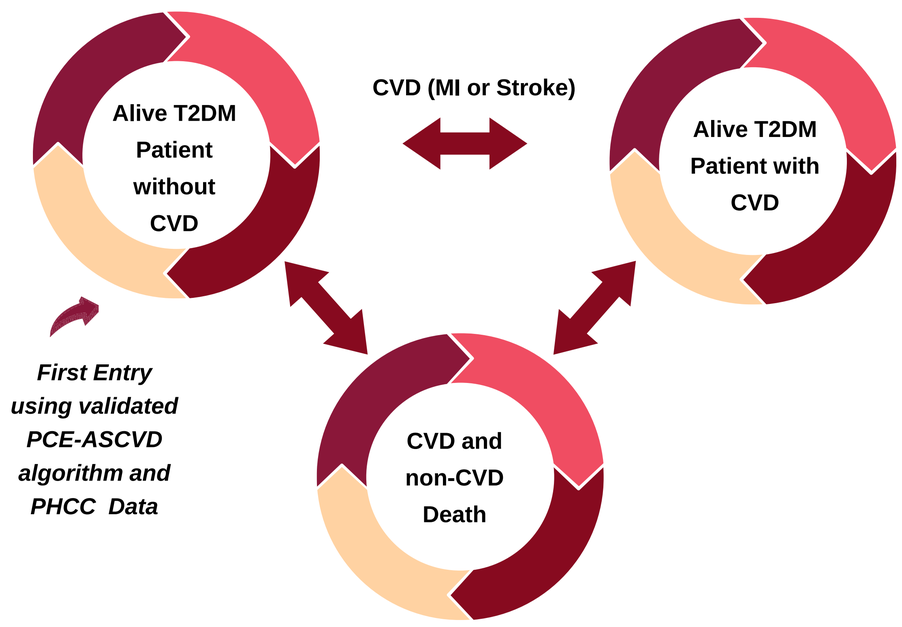
- Cardiovascular disease (CVD) is a major burden among type 2 diabetes mellitus (T2DM) patients in Qatar
  - A third of Qatari adults have three or more major cardiovascular disease risk factors
- There are no cost-effectiveness studies of CVD risk-modifying interventions

Objective

- Evaluate the cost-effectiveness of CVD risk-modifying interventions in reducing the QALY and economic burden of CVD in the T2DM Qatari population

Methods

- **Cost-effectiveness analytic model:**
  - Dynamic Markov model, 2024-2033 (1), adapting social and healthcare perspective
- **Model population:**
  - Population at risk of ASCVD (Primary prevention)
  - Population at risk of recurrence of ASCVD (Secondary prevention)



- **Data source:**
  - Evidence-based literature, and publicly available Qatari data
- **Outcome measures:**
  - ICER (Incremental cost-effectiveness ratio);
    - Cost vs QALY (Quality Adjusted Life years)
- **Willingness to pay (WTP):**
  - QAR 550,000/QALY
- **Sensitivity analyses:**
  - 95% confidence interval using Monte Carlo Simulation with 10,000 iterations

Results

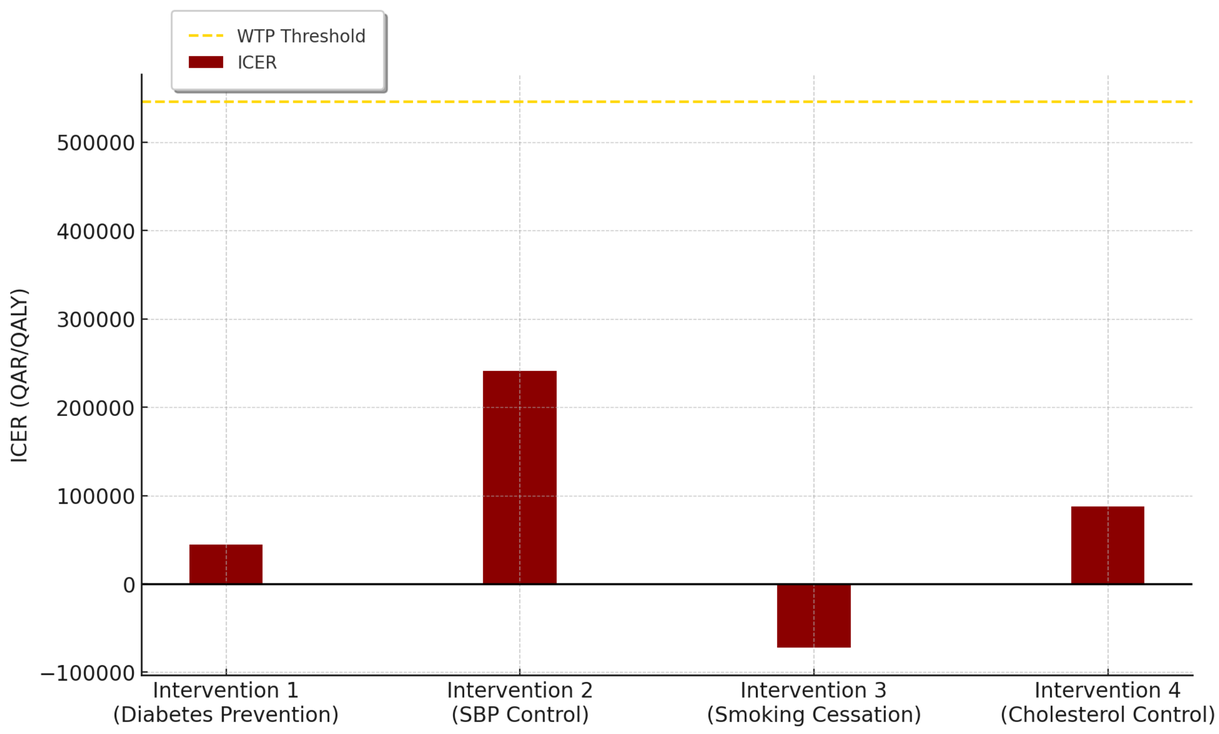
Total QALYs and costs of intervention cohorts vs standard care

- All intervention cohorts resulted in higher QALYs compared to standard care
- Total QALYs ranged from 3.2 to 3.3 million years, while total cost ranged from QAR 44 Billion to QAR 103 Billion

Models	QALYs	Costs
Burden **without** intervention (Standard care)	**3,148,391**	**QAR 57,467,129,020**
*Burden **with** hypothetical interventions (Pooled population)*		
Intervention 1: Diabetes prevention (*9.5% reduction in T2DM prevalence*)	3,198,827	QAR 59,727,007,280
Intervention 2: SBP control (*17% reduction in SBP*)	3,338,175	QAR 103,204,511,787
Intervention 3: Smoking cessation (*19% reduction in smokers*)	3,330,799	QAR 44,275,224,878
Intervention 4: Cholesterol control (*39 mg/dL reduction in LDL*)	3,312,554	QAR 71,895,539,232

ICERs of intervention cohorts vs stadard care

- All interventions were cost effective
- Smoking cessation intervention was dominant (lower cost, higher QALY)



Conclusion

- The integration of CVD risk modifying interventions in reducing the burden of CVD in T2DM Qatari population improves health outcomes and is cost effective

Critical References

1. Abushanab D et al. *Societal health and economic burden of cardiovascular diseases in the population….* Diabetes Obes Metab 2024;26(1):148-159