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# Is risk scoring for cardiovascular diseases cost-effective in IraPEN?

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# CVD Risk Scoring in IraPEN

- IraPEN tailors the WHO PEN interventions to the national context.
- The program emphasizes preventive interventions for cardiovascular diseases (CVDs) based on the level of risk calculated using the WHO CVD risk charts.
- These charts use costed laboratory measurements of fasting blood sugar and total cholesterol.
- We aimed to measure the potential cost-effectiveness of preventive strategies for CVD in different CVD risk categories.

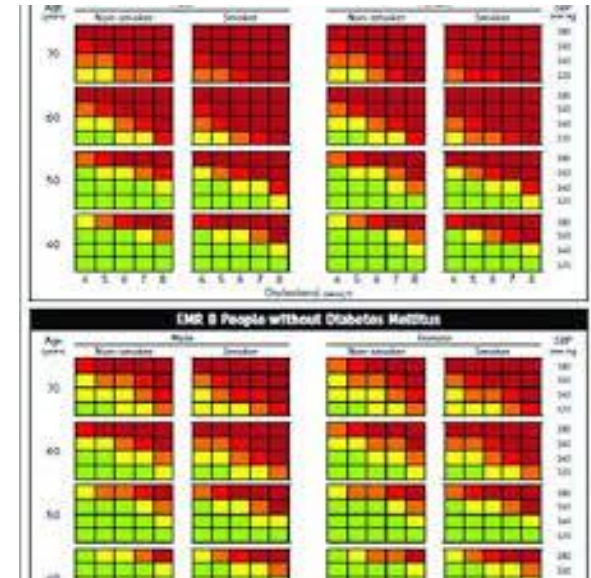


TABLE 1 Index cohorts representing different CVD risk levels\*.

	Low risk	Moderate risk	High risk	Very high risk
<b>Without diabetes</b>				
Systolic blood pressure	120–139 mmHg	140–159 mmHg	160–179 mmHg	> 180 mmHg
Total cholesterol	<195 mg/dl	> 310 mg/dl	> 310 mg/dl	> 310 mg/dl
HDL	40 mg/dl	46 mg/dl	46 mg/dl	41 mg/dl
Smoking	No	Yes	Yes	Yes
Sex	Male	Female	Female	Male
<b>With diabetes</b>				
Systolic blood pressure	120–139 mmHg	140–159 mmHg	160–179 mmHg	> 180 mmHg
Total cholesterol	<195 mg/dl	> 310 mg/dl	<270 mg/dl	<270 mg/dl
HDL	46 mg/dl	46 mg/dl	40 mg/dl	41 mg/dl
Smoking	No	No	Yes	Yes
Sex	Female	Female	Male	Male

# Different interventions in Different risk thresholds and different transition rates

<10 %

10-19%

20-29%

>=30 %

Quality-adjusted life years (QALY) as final outcome,

Markov models to compare the long-term costs and health benefits of the program with the status quo

Incremental cost-effectiveness ratio (ICER) was calculated.

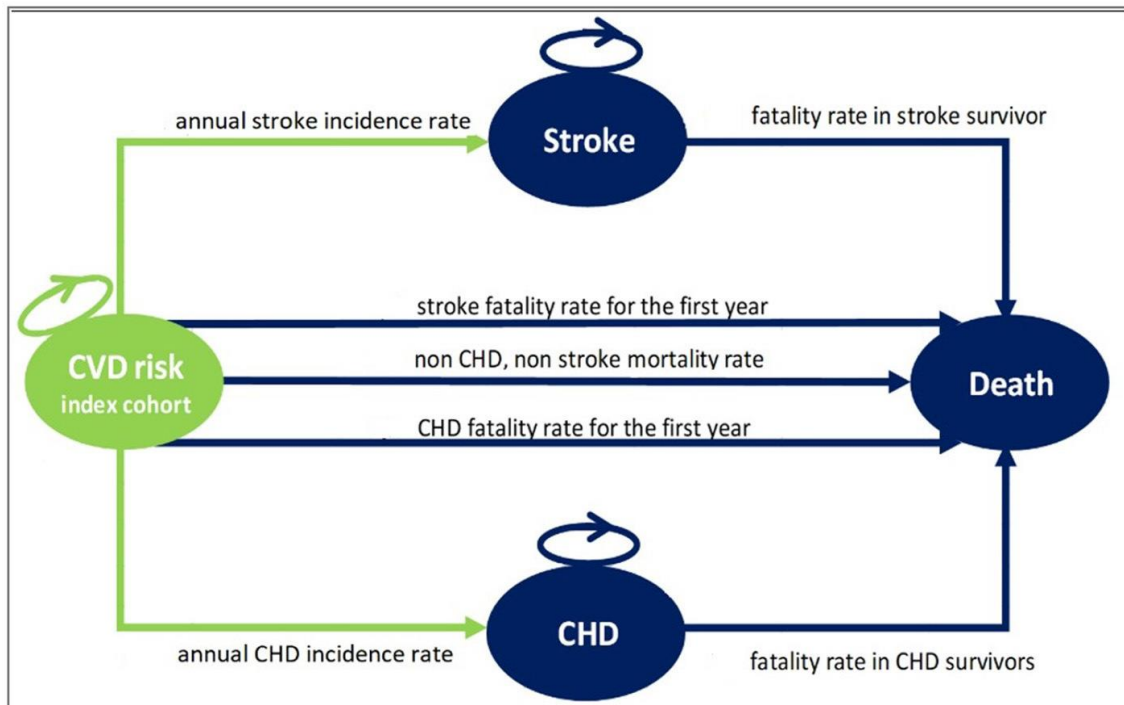


TABLE 7 Base-case results for CVD risk groups without diabetes.

	COST	QALY	LY	ICER
Status quo	\$845	18.12	32.27	
IraPEN	\$918	18.12	32.27	Undefined
Incremental	\$73	0	0	Low-risk
Status quo	\$979	17.89	32.37	
IraPEN	\$1,375	18.38	33.06	\$804 ♀
Incremental	\$396	0.49	0.69	Intermediate-risk
Status quo	\$1,204	17.68	32.13	
IraPEN	\$1,594	18.38	33.09	\$551 ♀
Incremental	\$391	0.71	0.96	High-risk
Status quo	\$2,348	15.83	29.3	
IraPEN	\$2,296	17.02	30.75	-\$44 ♂
Incremental	-\$52	1.19	1.45	Very high-risk

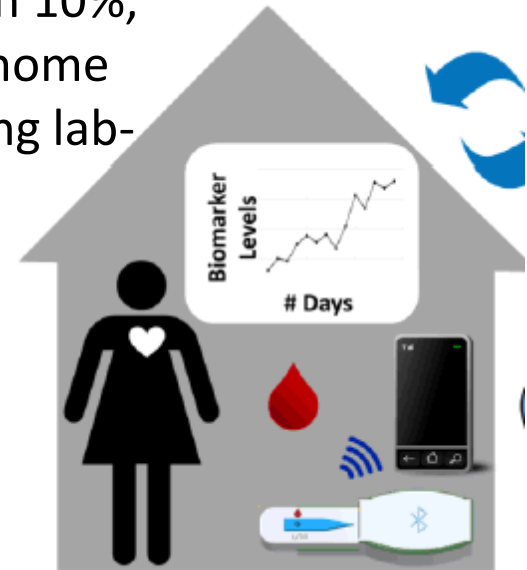
TABLE 8 Base-case results for CVD risk groups with diabetes.

	COST	QALY	LY	ICER
Status quo	\$647	18.59	33.36	Low risk
IraPEN	\$866	18.9	33.82	\$711 ♀
Incremental	\$219	0.31	0.46	
Status quo	\$1,027	17.75	32.17	Moderate
IraPEN	\$1,560	18.59	33.37	\$630 ♀
Incremental	\$533	0.85	1.2	
Status quo	\$2,429	15.91	29.46	High
IraPEN	\$2,361	17.53	31.5	-\$42 ♂
Incremental	-\$68	1.61	2.04	
Status quo	\$2,810	15.31	28.74	Very high
IraPEN	\$2,678	17.18	31.03	-\$71 ♂
Incremental	-\$133	1.87	2.29	

# Conclusion

The IraPEN program was highly cost-effective for all CVD risk groups except for the low-risk group without diabetes.

As around 70% of our population has a CVD risk lower than 10%, it is recommended to use self-assessment for CVD risk at home using non-laboratory risk prediction models before applying lab-based models.





# Thanks!

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