

EE262: An Economic Evaluation and Return on Investment of the Community Benefit of the Australian Pregnancy Register of Anti-Seizure Medications

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1 Background

- The Raoul Wallenberg Australian Pregnancy Register (APR) was established to collect, analyse and publish data on the risks to babies exposed to anti-seizure medications (ASMs), and to facilitate quality improvements in management care over time.
- It is one of several prospective observational pregnancy registers of ASMs that has been established around the world^{1,2}. While the APR and other registries have contributed to knowledge gain that has been applied to decrease adverse pregnancy outcomes, their cost-effectiveness remains unknown.

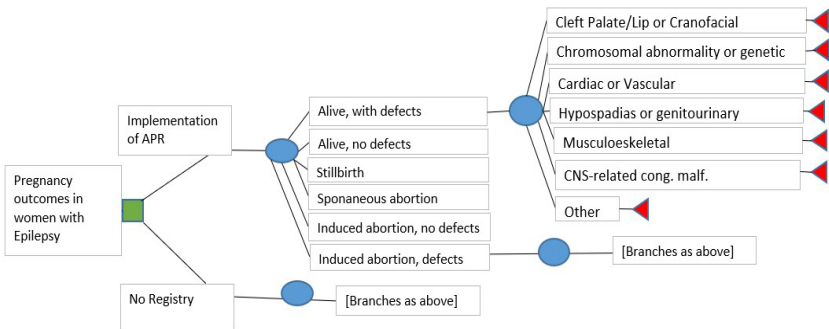
Aims

- Here we aimed to evaluate the economic impacts of the APR from both societal and healthcare system perspectives.

2 Methods

- Using decision-analytic modelling, we estimated the effectiveness (prevention of adverse pregnancy outcomes) and costs (costs of adverse pregnancy outcomes and the register itself) of the APR over a 20-year time horizon (2000-2019). The comparator was set as the adverse pregnancy outcomes collected by the APR between 1998 and 2002 (i.e., no APR derived improvements in care).
- In the scenario analysis we conservatively assumed a 2.5% and 5% contribution of the APR to the savings in healthcare and societal costs. Adverse pregnancy outcomes included stillbirth, birth defects and induced abortion. All cost data were derived from published sources.
- Health and economic outcomes were extrapolated to the total target Australian epilepsy population. The primary outcomes of interest were the return of investment (ROI) for the APR and incremental cost-effectiveness ratio (ICER) in terms of cost per adverse outcome avoided.

Figure 1. Decision Analysis



- The annual cost for the APR was estimated to be AUD200,000 per year. This was based on yearly contract cost paid and total annual staff cost.

3 Results

- Over the 20-year time horizon, the ROI from the APR from a societal perspective was AUD 2,250 (i.e. every dollar spent on the program resulted in a return of AUD2,250).
- Over this time, it was estimated that 9,609 adverse pregnancy outcomes were avoided.
- Healthcare and societal costs were reduced by AUD 191 million and AUD 9.0 billion, respectively.
- Hence from a health economic point of view, the APR was dominant, providing cost-saving ICERs from both perspectives

Figure 2. Pregnancy Outcomes, Alive and Induced Abortions with Defects

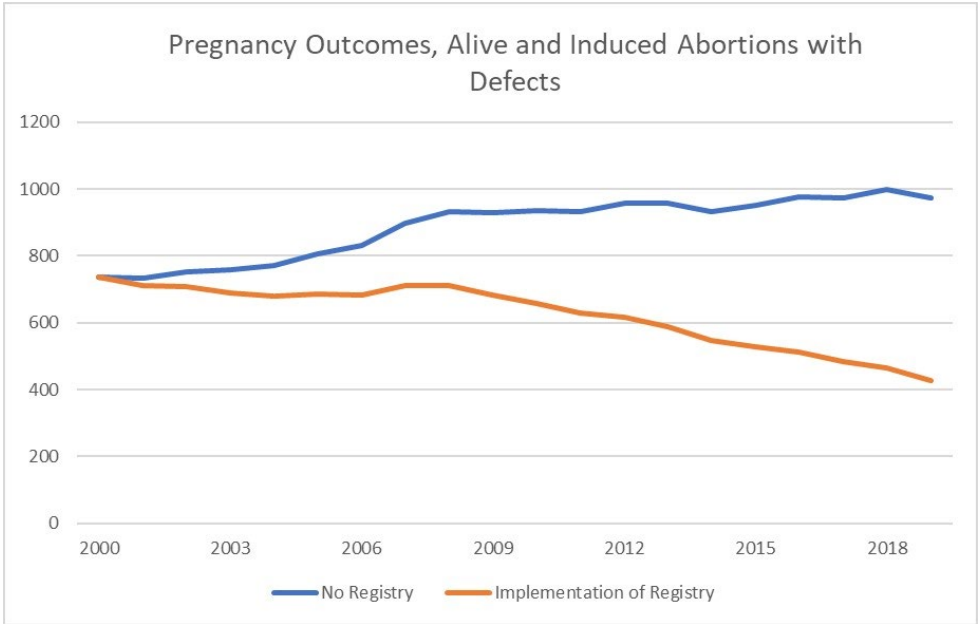
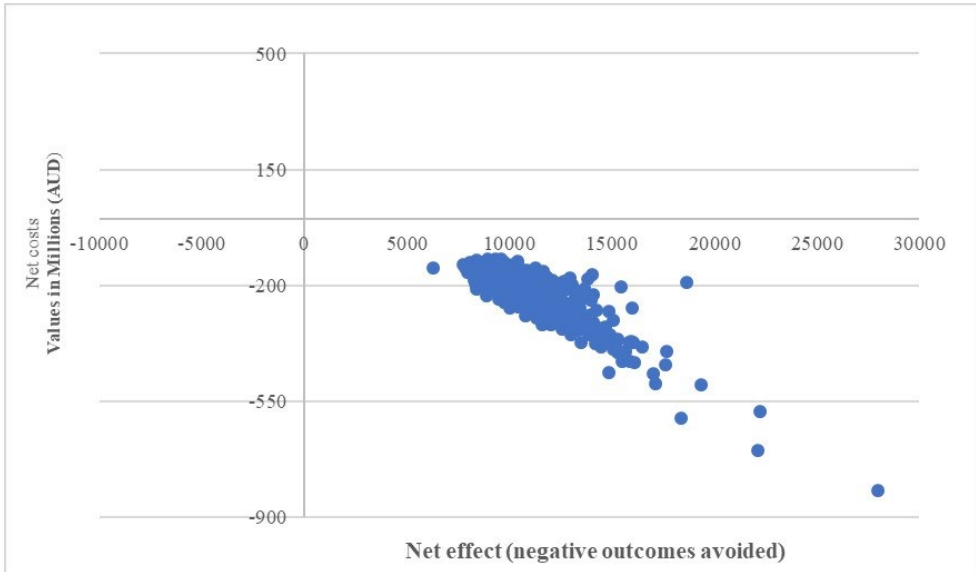


Table 1. Incremental Cost Effectiveness Ratio (ICER) cost per negative events avoided

Healthcare ICER (cost per negative outcome avoided)	Societal ICER (costs per negative outcome avoided)	Net costs	Return on investment	Return on investment Excluding Value lost Welfare and out of pocket costs
(-\$191,195,524 /-9609) =-\$19,989	(-\$6,641,161,194/-9609)=-691,151	-\$6,641,161,194	1661	120
Cost saving	Cost Saving			

Figure 3. Cost-effectiveness plane, comparing Implementation of Registry vs. No Registry



4 Conclusion

- This analysis demonstrates that, over its 20-year existence, the APR has been a highly cost saving initiative, with major benefits to society and health care.
- With the growing number of available ASMs introduced to the practice, the APR is expected to continue to exert benefits in the foreseeable future.