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THE COST-EFFECTIVENESS OF A PUBLIC HEALTH NURSE PROGRAM TO SCREEN FOR AMBLYOPIA IN ONTARIO

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Abstract

Objective: To examine the cost-effectiveness of screening for amblyopia risk factors by a public health nurse compared to screening by a physician at Well Baby Visits for children aged 4 years in Ontario.

Methods: This study was conducted from the perspective of the Ontario Ministry of Health and Long-Term Care. A combined decision tree and Markov model was constructed to simulate a cohort of 4-year-old children over a lifetime horizon. The model structure, costs, health utilities and probabilities were informed by the literature and clinical experts. Future costs and health utilities were discounted to the present at a rate of 1.5%. Deterministic one-way and two-way sensitivity analysis were conducted to assess the robustness of the results.

Results: The public health nurse screening strategy was less costly ($861 less) and more effective (0.03 QALYs more) than the paediatrician Well Baby Visit screening strategy. The public health nurse screening strategy dominated the Well Baby Visit screening strategy in most of the sensitivity analyses. The results were sensitive to the health utility of amblyopia patients aged 10-64 years and the sensitivity of public health nurse screening. At a sensitivity of at least 0.42 the public health nurse screening strategy was no longer dominant and resulted in an ICER of $27,169 per QALY gained. If the health utility of having amblyopia at age 10-64 years

increased to 0.94, then the intervention was no longer dominant and results in an ICER of $68,030 per QALY gained.

Conclusions: Based on our model, screening for amblyopia by a public health nurse at age 4 years is cost-effective. Further research needs to be conducted on the costs of amblyopia as well as the health-related quality of life of vision impairment.